ONTARIO PARKS

Peter's Woods

Preliminary Park Management Plan

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Cover photos: Left top – Prairie Buttercup; Left middle – Savannah; Left bottom – Lichen; Right - Woodland Stream
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Dear Sir / Madam:

The Ministry of Natural Resources (MNR), Ontario Parks with the assistance of the Nature Conservancy of Canada (NCC) are presently undertaking the development of a management plan for Peter's Woods Provincial Park. As part of this project, I am pleased to present the Peter's Woods Preliminary Park Management Plan.

Ontario Parks and the NCC acquired approximately 320 hectares of land near the park, with the intent that it be added to the original park to protect its distinctive landscape, flora and fauna. As a result, this document proposes addition of this acquired property to the existing Peter's Woods Provincial Park.

The preliminary plan contains proposed policies relating to resource stewardship, operations and development that will guide the management of Peter's Woods Provincial Park over the next 20 years. After careful consideration of the background information collected and review of comments received, this document represents Ontario Parks' preferred policy for the park.

You are invited to review and comment on the preliminary park management plan for a period of 45 days following its release. An open house will be held upon release of this plan, as part of the consultation process. Open house dates and venues will be advertised separately. All comments regarding the preliminary park management plan should be submitted to:

Greg Walsh, Park Superintendent
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1600 Darlington Park Road, RR 2
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The MNR is collecting your personal information and comments under the authority of Ontario's *Provincial Parks and Conservation Reserves Act*. Any personal information you provide (address, name, telephone, etc.) will be protected in accordance with the *Freedom of Information and Protection of Privacy Act*, however your comments will become part of the record of consultation and may be shared with the general public. Your personal information may be used by the MNR to send you information about future MNR planning initiatives in the park area. If you have questions about the use of your personal information, please contact Susan Grigg, Park Planner, Ontario Parks Southeast Zone, at (613) 531-5722.

Your participation in planning for this provincial park is appreciated. All comments received will be considered during the preparation of the final Peter's Woods Provincial Park Management Plan.

Yours truly,

Adair Ireland-Smith
Director
Ontario Parks

Nov 27/07
Date

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1. Context

1.1 Statement of Environmental Values and the Environmental Bill of Rights

In 1994, the Ministry of Natural Resources (MNR) finalized its *Statement of Environmental Values* (SEV) under the *Environmental Bill of Rights* (EBR). The SEV is a document that describes how the purposes of the EBR are to be considered whenever decisions are made in the Ministry that might significantly affect the environment. This includes decisions made as a result of the park management planning process.

The primary purpose of the EBR is "to protect, conserve and, where reasonable, restore the integrity of the environment." From the Ministry's perspective, that broad statement of purpose translates into four objectives in its SEV:

- to ensure the long-term health of ecosystems by protecting and conserving our valuable soil, aquatic resources, forest and wildlife resources as well as their biological foundations;
- to ensure the continuing availability of natural resources for the long-term benefit of the people of Ontario;
- to protect natural heritage and biological features of provincial significance; and
- to protect human life, the resource base and physical property from the threats of forest fires, floods and erosion.

The Ministry's SEV has been considered throughout the planning process. The management plan for Peter's Woods Provincial Park will further the objectives of managing Ontario's resources on an environmentally sustainable basis.

1.2 Planning Context

This preliminary park management plan has been prepared consistent with direction contained in *Our Sustainable Future, Ministry of Natural Resources Strategic Directions* (2005). This document has also been prepared consistent with direction contained in *Protecting What Sustains Us: Ontario's Biodiversity Strategy* (2005). The Ministry's vision is "sustainable development"; and the Ministry's mission is "ecological sustainability". The Ontario Parks program contributes mainly to the goal of: "Healthy Natural Environment for Ontarians", but contributes to other strategic elements as well. The mandate of the Ministry for Ontario Parks is to deliver Ontario's parks and protected areas program, which includes: the protection and management of provincially significant natural, cultural, and recreational environments; provincial parks operations; provision of tourism opportunities, natural heritage education; planning and management of parks and protected areas; policy and program leadership on conservation reserves; monitoring, auditing, and public reporting on Ontario's protected areas.

Peter's Woods Provincial Park is situated on the Oak Ridges Moraine, one of Ontario's most significant landforms, that stretches 160 kilometres from the Trent River in the east to the Niagara Escarpment in the west. The park's protection is consistent with direction in the Oak Ridges Moraine Conservation Plan, as further described in **Sections 2.0 and 7.2** of this plan.

This preliminary management plan provides policy direction for the management of Peter's Woods Provincial Park. It is based on the terms of reference document, background information, and issues and optional approaches summary document and input received from

consultation. This document is a ***proposed*** plan and all aspects of it are subject to review and comment.

Based on input received, Ontario Parks will prepare, approve and distribute the management plan for Peter's Woods Provincial Park.

1.3 Aboriginal Context

Peter's Woods Provincial Park is located within the area covered by the Williams Treaty signed in 1923. No long term aboriginal occupation of the site is known to have occurred. The park is directly south of two Mississauga communities, the Alderville First Nation located south of Rice Lake and Hiawatha First Nation located on the north shore of Rice Lake.

2. Introduction

Peter's Woods Provincial Park is located 20 kilometres (km) northeast of Cobourg within the geographic township of Haldimand, now the Township of Alnwick/Haldimand, in the County of Northumberland. The park is located within the northern edge of the rolling landscape of the Rice Lake Plains area of the Oak Ridges Moraine in Ecodistrict 6E-7 (Uxbridge) [1]. The Oak Ridges Moraine is a provincially significant landform that serves as a headwater and groundwater recharge area for the lands to the north and south. The park is entirely or partly within two provincially significant areas: Burnley Creek Area of Natural and Scientific Interest (ANSI); and Burnley Creek Headwater Wetland Complex (Figure 1).

The park lies within the Ministry of Natural Resources (MNR) Peterborough administrative district and is administered by the park superintendent at Darlington Provincial Park near Oshawa, reporting to the Ontario Parks, southeast zone office at Kingston.

Peter's Woods is accessible from Highway 45 by following County Road 29 to Burnley, or from Highway 401 following the Centreton exit and County Road 23. A series of local rural roads connect these two county roads and the park (Figure 1).

The original 33 hectare (ha) Peter's Woods Provincial Park was regulated under the *Provincial Parks Act* in 1976. The park is non-operating and development is limited to a small parking area and one hiking trail. Two blocks of land acquired in 2002, formerly known as the Burnley-Carmel property, are proposed for addition to the park through this plan, and will substantially increase the park size (Figures 1-4, **Section 7.0**). For the purposes of this plan, the park will be considered to include all three areas or parts.

The original park (hereafter referred to as Part 1) supports one of the most mature deciduous woodlands in southern Ontario, and has been defined as "older-growth". It was acquired through cooperation between the Willow Beach Field Naturalists and the Ministry of Natural Resources. The Willow Beach Field Naturalists provided financial assistance for the acquisition, made important contributions to a 1977 master plan and 1990 management plan, and continue to provide valuable assistance in the management of the park. This plan updates and replaces the previous management plan.

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[1] For park system planning purposes, Ontario is divided into 71 ecodistricts based on landform, physiography and climate.

Peter's Woods is named in honour and commemoration of Mr. A. B. "Peter" Schultz, a naturalist, conservationist and leading member of the Willow Beach Field Naturalists.

In 2002, the Nature Conservancy of Canada (NCC) purchased 317 ha of land from the Oak Valley Tree Farm. This purchase was made under the Legacy program partnership with Ontario Parks to secure significant natural areas in the province. The property, formerly known as Burnley-Carmel, consists of two blocks, a north block and a south block (hereafter referred to as Part 2 and Part 3 respectively), which are separate from Part 1 but are within one kilometre of it. It is subject to a lease agreement between NCC and Ontario Parks, in which NCC retains ownership and management of the site is the responsibility of Ontario Parks. This site contains high quality and degraded areas of tallgrass prairie and oak savannah habitat, and has the potential to support some of the best tallgrass prairie and oak savannahs in all of Ontario. This property was purchased with the intent of adding it to the existing park, and it is proposed for addition to the park through this plan (**Section 7.0**).

Parts 2 and 3 of the park abut the Northumberland County Forest, a 2,164 ha forested area managed by the County of Northumberland, with a variety of multi-use trails. The County Forest is situated mainly within the Township of Alnwick/Haldimand, with a small section in Hamilton Township. Originally developed as an Agreement Forest to address soil erosion and groundwater protection, it was previously managed by the MNR. The forest contains numerous high quality areas of tallgrass prairie, savannah and woodland as identified in a recent Tallgrass Communities Assessment prepared by the NCC. The County of Northumberland is working in partnership with the Rice Lake Plains Joint Initiative (**Section 10.4**) to preserve and restore these and other ecologically significant habitats in the forest.

There are no other provincial parks within the Rice Lake Plains area of the Oak Ridges Moraine. Other protected areas or areas of significant habitat within the Rice Lake Plains include the Alderville First Nation Reserve, Northumberland County Forest, Burnley Creek Natural Habitat Area and Alderville Woods Natural Habitat Area, the latter two areas being administered by Lower Trent Region Conservation Authority. The significance and protection needs of the Rice Lake Plains area have been recognized through the formation of the Rice Lake Plains Joint Initiative, consisting of six founding partners including the NCC and Ontario Parks (**Section 10.4.1**).

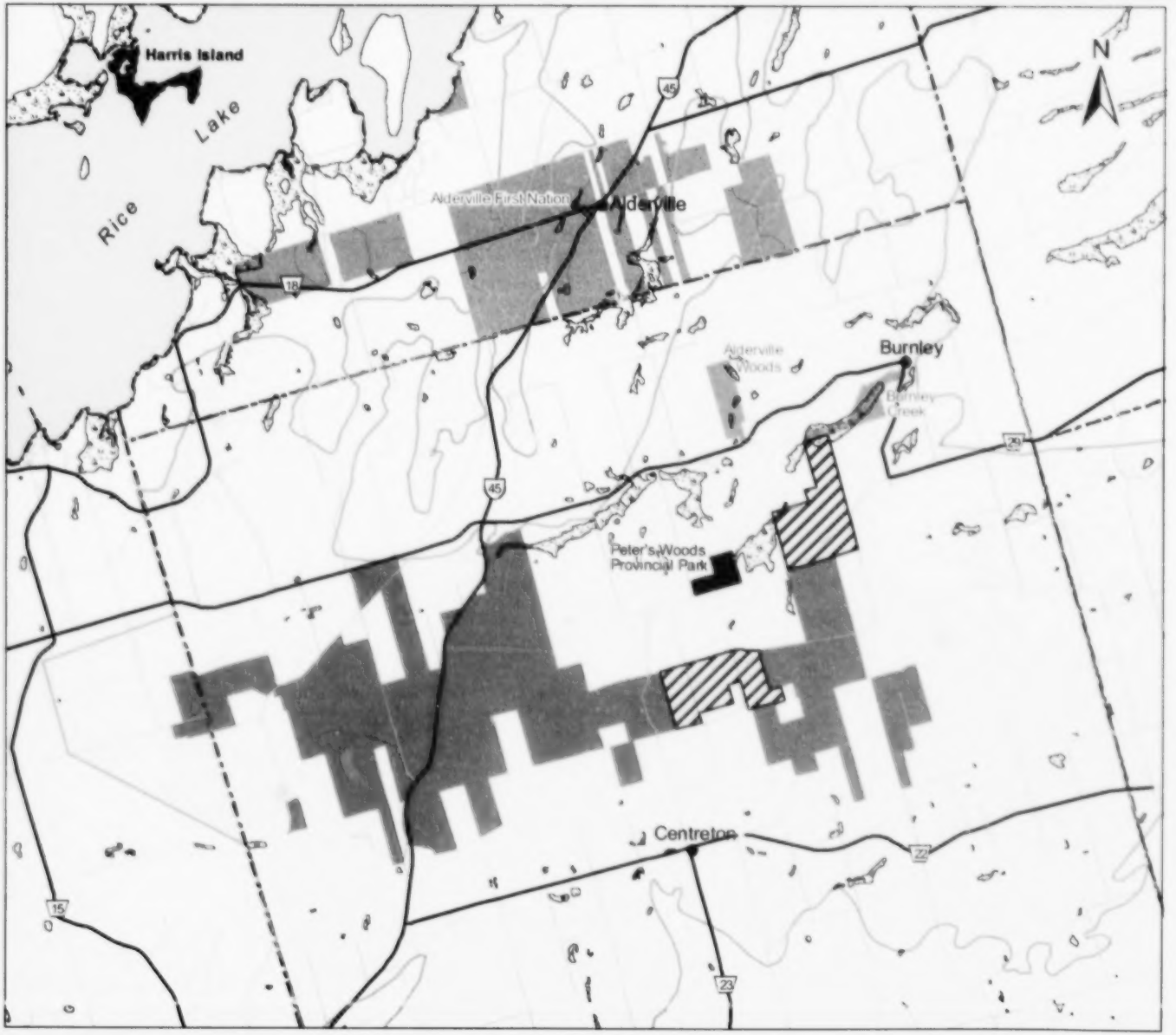
Preparation of this plan involved a review of background information, including information gathered from site visits and inventories. The field studies provided a detailed inventory of ecological features, and an assessment of local landscape context and human land uses. This work included botanical inventories, ecological land classification and wildlife surveys. Information compiled from background sources and field studies were analyzed to determine the significance and sensitivity of the ecological features and functions of the property.

The Peter's Woods Preliminary Park Management Plan has been developed in accordance with the Ontario Provincial Parks Planning and Management Policies (1992) and the Lindsay District Land Use Guidelines for the Ministry of Natural Resources (1983). In accordance with this plan, MNR will amend affected area-specific land use policies and mapping found in the Crown Land Use Policy Atlas.

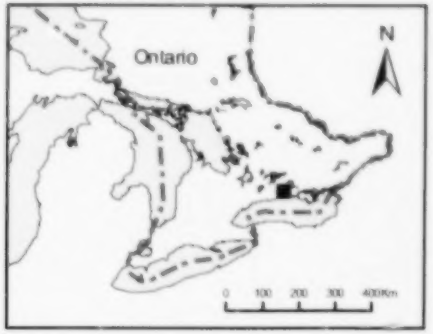
The approved park management plan will guide the management, operation and development, of Peter's Woods over the next 20 years. The plan will be reviewed in 10 years or amended as the need arises. **Section 12** describes the process for review and amendment of the plan.

FIGURE # 1

REGIONAL SETTING MAP



Peter's Woods



Legend Area Features

- Rice Lake Plain
- Lower Trent Conservation Lands
- Northumberland County Forest
- Proposed Provincial Park Addition
- Provincial Park
- Area of Natural or Scientific Interest (ANSI)

Transportation Features

- Highways
- Road

Legend Base Features

- River
- First Nations
- Township Boundary
- Provincially Significant Wetland
- Lake

0 1 2 3 4Km

Ontario

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This map is illustrative only. Do not rely on it as being a precise indicator of routes, locations of features, nor as a guide to navigation.

Projection: UTM Zone 18
Datum: North American Datum 1983
Base derived from: NRVIS (Natural Resource Value Information System)
Produced by: Ontario Parks, Southeast Zone

3. Summary of Significant Management Concerns

The significant management concerns listed below were identified at the second stage of management planning, and input was solicited from individuals, stakeholders and First Nations on the project mailing list. Responses to these concerns are detailed in **Section 14.1**. The policies of this plan address these topics.

- **Burnley-Carmel Addition**
  Although there was support expressed for nature reserve classification and zoning for the proposed park addition, there was some interest expressed in hunting within Parts 2 and 3, and in an access zone. Hunting is not permitted in nature reserve class parks. Specific policies for this topic are provided in **Sections 7, 9, 10, and 11.**

- **Vegetation Management - Oak Savannah and Prairie Habitats and Invasive Species**
  The park contains significant tallgrass communities such as oak savannah, oak-pine savannah, tallgrass prairie and sand barrens. Prescribed burns can be conducted in vegetation communities like oak savannahs and prairies that require natural fire regimes in order to persist. Historically these habitats persisted as a result of these natural disturbances, but since European settlement, habitat loss and fire suppression have resulted in much of this habitat being lost and most remnants being severely degraded. Although some concerns were raised with active management, there was some support for use of active management at the park for specific purposes, such as prescribed burning to restore prairie and savannah habitats, and control of non-native plant species. Specific policies for this topic are provided in **Section 9.3**.

- **Recreation**
  Recreation within nature reserve class parks is limited to low intensity day use activities that enhance appreciation of the park, such as hiking, cross country skiing and snowshoeing. There was some concern that mechanized activities permitted on lands adjacent to Peter's Woods, including use on trails within the Northumberland County Forest and on unopened road allowances, may result in unauthorized access and use issues. While there was some interest in additional hiking trails and other recreational opportunities, others did not support additional trails or use. The Oak Ridges Trail Association recently approached Ontario Parks and NCC to express interest in incorporating existing hiking trails within the recommended addition into an Oak Ridges Trail extension. Specific policies for this topic are provided in **Sections 10.3 and 11.1**.

- **Ecotourism**
  There is limited existing use of the park for ecotourism. Promotion of the park for ecotourism would be a concern, given its non-operating status, small size, sensitive features and additional facilities and resources that would be required. Specific policies for this topic are provided in **Section 10.1**.

4. Classification

Through park classification, Ontario's provincial parks are organized into broad categories, each of which has particular purposes and characteristics. Park classification defines an individual park's role in providing opportunities for environmental protection, recreation, heritage appreciation and / or tourism.

Peter's Woods is a nature reserve class park. The policies for nature reserve class parks provide the greatest level of protection of all classes of parks. In recognition of the park's significant life science features, the nature reserve classification will continue. The nature reserve park classification is proposed to be extended to include Parts 2 and 3 (the Burnley-Carmel property), resulting in a single, larger nature reserve class park (**Section 7**).

From this point forward, the term "Peter's Woods" will refer to all areas within the proposed boundary.

5. Goal

The goal of Peter's Woods Provincial Park is *to protect and perpetuate significant and representative natural heritage features, including older-growth forest, tallgrass prairie and oak savannah.*

Peter's Woods Provincial Park is governed by Ontario's *Provincial Parks and Conservation Reserves Act*, the Ontario Provincial Parks Policy and Ontario Provincial Parks: Planning and Management Policies (1992).

6. Objectives

Ontario's provincial parks system has four objectives for establishing and managing provincial parks, as stated in Ontario's *Provincial Parks and Conservation Reserves Act*:

- to permanently protect representative ecosystems, biodiversity and provincially significant elements of Ontario's natural and cultural heritage and to manage these areas to ensure that ecological integrity is maintained;
- to provide opportunities for ecologically sustainable outdoor recreation opportunities and encourage associated economic benefits;
- to provide opportunities for residents of Ontario and visitors to increase their knowledge and appreciation of Ontario's natural and cultural heritage; and
- to facilitate scientific research and to provide points of reference to support monitoring of ecological change on the broader landscape.

The objectives of nature reserve class parks are to protect representative ecosystems and provincially significant elements of Ontario's natural heritage, including distinctive natural habitats and landforms, for their intrinsic value, to support scientific research and to maintain biodiversity. Peter's Woods' contribution to the nature reserve class park objectives are as follows.

6.1 Protection

The park's protection objective is:

To protect and restore significant elements of the park's natural heritage.

This is the primary objective of the park. Protection of globally rare tallgrass communities and species, older-growth forest, and wetlands will be paramount. Protection will not be limited to provincially significant features. Park management will be directed toward maintaining a healthy, diverse and sustainable natural environment, which will enhance achievement of the park's heritage appreciation objective.

Ontario's parks play an important role in representing and conserving the diversity of Ontario's natural features and ecosystems, across the broader landscape. Protected areas include representative examples of life and earth science features, and cultural features within ecologically or geologically defined regions. Ontario's ecological classification system provides the basis for the life science feature assessment, and the geological themes provide the basis for earth science assessment

Ontario Parks will work to achieve the park's protection objective through appropriate park zoning, resource stewardship, land use practices and an ecosystem approach to park planning and management.

Native Ontario species are assigned status designations through review and assessment at national and provincial levels. Status designations are assigned at the national level by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), and at the provincial level by recommendation of MNR's Committee on the Status of Species at Risk in Ontario (COSSARO). In this plan "species at risk" means native Ontario species assigned status designations of Special Concern, Threatened, Endangered or Extirpated:

1. as listed by MNR on its *Species at Risk in Ontario* list, including:
   - Species named by regulation under Ontario's *Endangered Species Act*; and
   - Species designated as Special Concern, Threatened, Endangered (not regulated) or Extirpated in Ontario by MNR, or

2. as listed in Schedules under the federal *Species at Risk Act*, including:
   - Species designated as Special Concern, Threatened, Endangered, or Extirpated by COSEWIC.

Several species listed at risk by MNR have been found in the park (Species at Risk in Ontario List, issued June 30, 2006), including butternut (*Juglans cinerea*; Endangered), birds such as red-shouldered hawks (*Buteo lineatus*; Special Concern) and Louisiana waterthrush (*Seirus motacilla*; Special Concern), and eastern ribbonsnake (*Thamnophis sauritus pop. 2*; Special Concern).

Consistent with *Protecting What Sustains Us: Ontario's Biodiversity Strategy*, the park will be managed to protect species at risk and their habitats. The preservation of species at risk is an inherent part of the park system's protection objective; species at risk policies are outlined in **Section 9.5**.

In addition to species at risk, the park supports species considered to be either provincially or regionally rare. "Regionally rare" species are species that are common in the province, but

have been designated by experts as rare in certain areas or regions of Ontario. "Provincially rare" species are those species assigned a ranking of S1, S2 or S3 by the Natural Heritage Information Centre (NHIC); each has less than 100 known occurrences in Ontario.

To date, life science studies have concentrated on plants and birds. There are still areas of the park's fauna and flora that have not been fully explored, and future studies may identify other significant plants or animals.

6.1.1. Life Sciences

Peter's Woods supports significant areas of older-growth forest, wetland and dry-sand oak savannah. The older-growth forest is a deciduous forest dominated by sugar maple (*Acer saccharum*) with red oak (*Quercus rubra*), white pine (*Pinus alba*), american beech (*Fagus grandifolia*) and white ash (*Fraxinus americana*) common throughout. Some of the savannah is in excellent condition, but much is in need of restoration.

- **Older-growth forest**
  The older-growth maple-beech forest in Part 1 of the park is representative for Ecoregion 6E. In comparison to other high quality sites, it is recognized as one of the most mature deciduous woodlands in southern Ontario. It is considered older-growth because it has been largely undisturbed by forest harvesting or other human disturbance, and has some relatively large, old trees. The forest has a relatively abundant and diverse groundcover with species typical of rich woods. The older-growth forest covers about 30 percent or 10 ha of Part 1 (Brdar 2005).

- **Prairie and savannah**
  All three parts of the park support areas of black oak (*Quercus velutina*) savannah of varying quality. Savannahs can generally be described as open areas with scattered trees. Oak savannahs, dominated by both prairie grasses and oak trees, are considered among the most significant ecological communities in North America, with their global conservation rank at G1 to G3[2]. Black oak savannah is globally imperilled, and has a G2 conservation rank. In Ontario, black oak savannah is designated as provincially rare (S1).

  Tallgrass prairies and savannahs were once found throughout the central United States, southern Manitoba and southern Ontario. Just a little over 2100 ha – or 1% – of the original habitat remains in southern Ontario. Most is located at Walpole Island First Nation, Pinery Provincial Park and the Windsor Ojibway Prairie area. The majority of the remaining pockets are located in small, less that 2 ha, parcels of private land.

  The prairies and savannahs of the Rice Lake Plains alone once covered about 15,384 ha. The Rice Lake Plains cover the area on the eastern extent of the Oak Ridges Moraine. The savannahs of Peter's Woods are remnants of this ecosystem. They are different in species composition from Ontario's other large, remaining savannah areas, in part because they are associated with a moraine rather than dunes, clay or lake plain.

  The specific significant natural features protected in the park's nature reserve zones are described in **Section 8.1**.

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[2] Global ranks designate a rarity rank based on the range-wide status of a species or community, subspecies or variety (G1 = extremely rare; G2 = very rare; G3 = rare to uncommon).

6.1.2. Earth Sciences

Bedrock is not exposed in the park. At depth, it consists primarily of limestones of the Middle Ordovician Simcoe Group. It is overlain by ice-contact sediments of the Oak Ridges Moraine. These are interbedded with sandy till (likely the Newmarket Till) and glaciolacustrine sediments laid down near the edges of glacial Lake Iroquois. A typical kettle-kame hummocky topography is encompassed by the park. Late postglacial runoff and spring activity have carved deep gullies into these sediments.

The soils of Part 1 of the park are generally dry to mesic well-drained sandy soils. Topography is generally characterized by a hilly "knob and basin" relief, typical of a dissected till and moraine slope (OMNR 1989). The soils in Part 3 are sand with smooth to steeply sloping topography and are slightly stony. Part 2 has the same soil type throughout the site as Part 3, except for two parts of the north western side where muck soil is found (Hoffman and Acton 1974).

Burnley Creek passes through Part 2 of the park (Figures 1, 3). Several springs and creeks pass through the upland sections of Part 1 to converge in a wetland area that forms part of the larger provincially significant Burnley Creek Headwater Wetland Complex. All of Parts 1 and 2 of the park are within the provincially significant Burnley Creek ANSI.

6.1.3. Cultural Resources

There have been no formal studies to assess for cultural resources in the park. No registered archaeological sites have been identified. The description of the Rice Lake Plains area at the time of European settlement has been well documented by Canadian pioneers that settled in the Peterborough area (Traill, 1989) and this pioneer settlement and its effects on the landscape is of interpretive interest. No long term aboriginal occupation of the site is known to have occurred.

6.2 Heritage Appreciation

The park's heritage appreciation objective is:

> *To provide opportunities for exploration and appreciation of the park's natural and cultural heritage.*

Within the limits of the need to restrict access to certain areas at certain times to protect natural heritage values, the entire park is suitable for low intensity heritage exploration and appreciation. In keeping with the protection objective, only basic visitor services will be provided, concentrating on self-use facilities and provision of information on the significant features of the park. Services will be developed in areas least susceptible to impact. Specific facilities and services for heritage education are described in **Section 10.2**.

The existing designated and undesignated trails will continue to provide opportunities to interpret natural (terrestrial and aquatic) features and cultural history.

7. Park Boundary and Land Tenure

Figures 2, 3 and 4 in this plan illustrate the park boundary as per Ontario Regulation 741/76 and proposed park additions described below. When the new boundary comes into regulation, the park's area will increase from 33 ha to an estimated 360 ha.

Part 1 of the park is patented Crown land, acquired in 1976 with financial assistance from the Willow Beach Field Naturalists. These lands are illustrated in Figure 2, and are described as the south ½ of Lot 14 and part of Lot 15, Concession 8, in the geographic township of Haldimand, County of Northumberland. The boundary of this area is well defined on the ground, by physical features.

A section of the north-south road allowance between Lots 14 and 15, Concession 8, in the geographic township of Haldimand, County of Northumberland, and bisecting the park was acquired by the Crown in 1980, and was subsequently closed. This road allowance will be added to the park.

Approximately 317 ha of land acquired in 2002 by the Nature Conservancy of Canada and Ontario Parks will be added to the park. These lands are described herein as Parts 2 and 3 of the park, and illustrated in Figures 3 and 4. They are described as Part of Lots 13, 14, 15, 16 and 17, Concession 7 and Part of Lots 9, 10 and 11, Concession 8, geographic township of Haldimand, County of Northumberland.

An administrative amendment to the Lindsay District Land Use Guidelines (MNR 1983) is required to recognize the recommended park additions, and is proceeding concurrent with management planning.

The *Provincial Parks and Conservation Reserves Act* governs activities within Peter's Woods Provincial Park and pertains only to lands and waters within the park's boundaries. Accordingly, park management plan policies apply only to the area within the regulated boundary of the park and proposed park additions. Within the park boundary, the protection of park values and features will be achieved through appropriate zoning, control of land use and activities, education, and monitoring of ecological impacts.

Where necessary, survey points will be re-established to identify the park boundary in order to maintain park interests and ensure good relations with neighbouring property owners.

7.1 Adjacent Lands

Lands adjacent to the park are a mix of private and municipal ownership and are located within the Natural Core area of the Oak Ridges Moraine (ORM) (**Section 7.2**). The Township of Alnwick/Haldimand has special policies in place, both in their Official Plan and Comprehensive Zoning By-law, to address lands that are within the ORM. Any future official plan or zoning by-law amendments or the introduction of a County Official Plan will have to conform to the Oak Ridges Moraine legislation. The Township's zoning by-law also requires the use of site plan control which will further ensure that new development or site alteration near the park is assessed to examine any potential impacts on the park's natural or cultural heritage features, in accordance with the Oak Ridges Moraine Conservation Plan (MMAH 2002), the Provincial Policy Statement and the *Planning Act*.

7.1.1. Municipal Lands

Parts 2 and 3 of the park abut the Northumberland County Forest, which is quickly becoming a destination for recreation enthusiasts from the greater Toronto area. At the time of preparation of this document the County of Northumberland had initiated forest management planning for this forest, and a draft plan had been prepared. In October 2005 the County entered into an agreement with the Oak Ridges Trail Association to extend the trail through the County Forest; recreational use will be an important focus of the final master plan.

Park managers will work with the County to clearly delineate the boundaries of the park and the County Forest and identify the recreational activities that are permitted within each area. These areas may complement each other in terms of recreational experiences.

The east-west unopened road allowance in Lots 14 and 15 between Concession 7 and 8 is adjacent to the older-growth forest stand within Part 1 of the park. The forest interior environment is easily disrupted by increased levels of light that would result from any clearing of vegetation on neighbouring lands to the south. Shade-loving plant species are eliminated by this effect. Trees along the park edge are also more susceptible to blowing down. Along much of the road allowance, a thick band of vegetation separates the park from the track used by vehicles. For the most part, a similar band is present on the southern side of the road allowance abutting private land. There are a few small trails from the road allowance into the park. Through the 1990 management plan process, it was determined that the Township wished to retain the east-west road allowance for fire and property access, recreational use and other future options. The Township was supportive of minimizing impacts to the park, and agreed to leave existing vegetation along the road allowance and to allow the MNR to plant additional vegetation if a need is identified.

7.2 Oak Ridges Moraine Conservation Plan

The park is located within one of southern Ontario's most significant landforms - the Oak Ridges Moraine - an irregular ridge complex located north of and parallel to Lake Ontario that has unique environmental, geological and hydrological features. The park is within a "Natural Core Area" land use designation identified in the Oak Ridges Moraine Conservation Plan (MMAH 2002). As defined in the conservation plan: "*Natural Core Areas protect those lands with the greatest concentrations of key natural heritage features which are critical to maintaining the integrity of the Moraine as a whole. Only existing uses and very restricted new resource management, agriculture, low intensity recreational, home businesses, transportation and utility uses are allowed in these areas.*"

8. Zoning

Areas within individual parks are identified as distinct zones for specific management purposes, in accordance with the significant features of the park and the level of protection required. Ontario Provincial Parks: Planning and Management Policies (MNR 1992) identifies the types of zones that may be applicable for each park class. For each type of zone, there are established policies for permissible management, use and development practices. Nature reserve class parks have three possible zone types: *nature reserve* (NR), *historical* (HI) and *access* (A). Two of these zone types are utilized for this park. There are eight (8) zones in total as illustrated in Figures 2, 3 and 4: seven nature reserve zones and one access zone. Each zone type permits

certain land uses and is managed in accordance with specific strategies. As a whole, the zones are designed to fulfill the goal and primary objective of the park.

It may be necessary to delineate some zone boundaries more precisely on the ground, and this will be done as required and as resources are available.

The following sections briefly describe each distinct zone. All resource management and recreational uses and facility development will be subject to standard legislation and policies governing provincial parks, as well as the park specific policies in **Sections 9, 10 and 11**.

8.1 Nature Reserve Zones

Nature reserve zones protect the inherent values of provincially significant natural features, their contributions to the environmental diversity of the park and the park system, and their potential for scientific research and public appreciation. These zones include any significant earth and life science features that require management distinct from that in adjacent zones, as well as a protective buffer with an absolute minimum of development. The main priority for nature reserve zones is protection, with some types of research and other uses being permitted. Only limited low-impact activities (e.g., hiking, nature appreciation) and scientific research may be permitted. Such activities would be subject to site evaluations to ensure that these activities are not leading to degradation within the zone. Development will be minimal, and may include signs and trails. The park's seven nature reserve zones include approximately 99.7 percent of the total park area.

The park's nature reserve zones are generally described below. These zones have been delineated based on their current and / or potential vegetation and their management needs. Vegetation communities for each zone are listed and described in more detail in Appendix A.

8.1.1. Zone NR1

(Prairie and Savannah Habitat – high quality) (42 ha)

This zone is within Part 2 and represents the highest quality savannah and prairie areas within the park. There are relatively few non-native species that have been planted or become established in this zone. Open grown black oaks dominate the canopy. The understory is dominated by regenerating black oak, fragrant sumac (*Rhus aromatica*), snowberry (*Symphoricarpos albus*), New Jersey tea (*Ceanothus americanus*), poverty oat grass (*Danthonia spicata*), long-fruited anemone (*Anenome cylindrica*) and Pensylvanica sedge (*Carex pensylvanica*).

Within Parts 2 and 3 of the park, there are several existing, interconnected, undesignated trails that cross through parts of this zone, and zones NR2-NR5 described below (Figures 3 and 4).

8.1.2. Zone NR2

(Prairie and Savannah Habitat – moderate quality) (48 ha)

This zone is within Part 2 of the park. Vegetation communities include oak-pine mixed forest, dry tallgrass prairie and sand barren. Some Scots pine (*Pinus sylvestris*) are present, but the majority of the area is dominated by open grassland with native prairie or savannah species.

8.1.3. Zone NR3

(Prairie and Savannah Habitat – lower quality) (108 ha)

This zone occurs with all three parts of the park.

It includes approximately 50 % of Part 3 and includes pockets within Part 2. This community is dominated by a mixture of native and non-native species. Vegetation communities are predominantly plantation and cultural woodland, with some cultural meadow, cultural savannah, mixed forest, and deciduous forest. These areas are dominated by Scots pine but have tallgrass species scattered throughout the understory. The tallgrass species include fragrant sumac and New Jersey tea.

In Part 1, this area includes a grassland community identified as Dry Black Oak – Pine Savannah - a pocket of dry rolling upland with scattered white pine and Scots pine. The ground cover includes remnant prairie species like butterfly milkweed (*Asclepias tuberose*). This pocket is more fully described in *Peter's Woods Ecological Survey, Monitoring and Stewardship* (Brdar 2005).

8.1.4. Zone NR4

(Prairie and Savannah Habitat – lower quality) (57 ha)

This zone is within Part 3 of the park. Scots pine and red pine have been planted in high concentrations in these areas. Native species are present but in lower numbers. Tallgrass or other native species are uncommon in these areas. The understory and ground cover in these communities is very limited as the planted tree species are dense and thinning has not occurred. If there is any regeneration it is of the non native canopy species such as Scots pine or red pine.

8.1.5. Zone NR5

(Burnley-Carmel Upland and Lowland Forest Communities) (74 ha)

These areas are within Parts 2 and 3 of the park, and are a mix of lowland forest, eastern hemlock (*Tsuga canadensis*) forest and wetland. Wetland areas include coniferous swamp, thicket swamp, mixed swamp, and meadow marsh. Lowland forest includes red maple (*Acer rubrum)-white pine mixed forest, hemlock mixed forest, white cedar (*Thuja occidentalis*) hardwood forest.*

8.1.6. Zone NR6

(Deciduous and Mixed Forest) (24 ha)

This zone is within Part 1 of the park, and is comprised of four distinct natural forest communities: older-growth sugar maple deciduous forest, mature hemlock mixed forest, mid-age white pine – oak mixed forest, and mid-age poplar – white birch deciduous forest. It is characterized by rich woods on rolling uplands dissected by streams, woods on flat uplands and a lowland drainage area. The older-growth maple-beech forest on dry to mesic sandy soils is representative for Ecoregion 6E, and is in good condition. There are very few such stands existing in the provincial protected areas system (Brdar 2005).

Securement of lands to the south and adjacent to this zone would increase the protection of the older-growth forest.

This zone includes the majority of the existing designated hiking trail.

This zone is more fully described in *Peter's Woods Ecological Survey, Monitoring and Stewardship* (Brdar 2005).

8.1.7. Zone NR7

(Mixed Pine Plantation) (4 ha)

This zone within Part 1 of the park is generally flat upland with a mixed plantation of white pine and Scots pine and a patchy understory of sugar maple, white ash and American basswood (*Tilia Americana*). The community type is best described as a White Pine Coniferous Plantation. This area is between access zone A1 and the older-growth forest community (zone NR6) and was formerly agricultural land.

The existing designated hiking trail crosses through this zone.

This zone is more fully described in *Peter's Woods Ecological Survey, Monitoring and Stewardship* (Brdar 2005).

8.2 Access Zones

Access zones are intended to serve as staging areas for access to the park and to provide for and regulate use. Limited facilities for research and for park management may also be present.

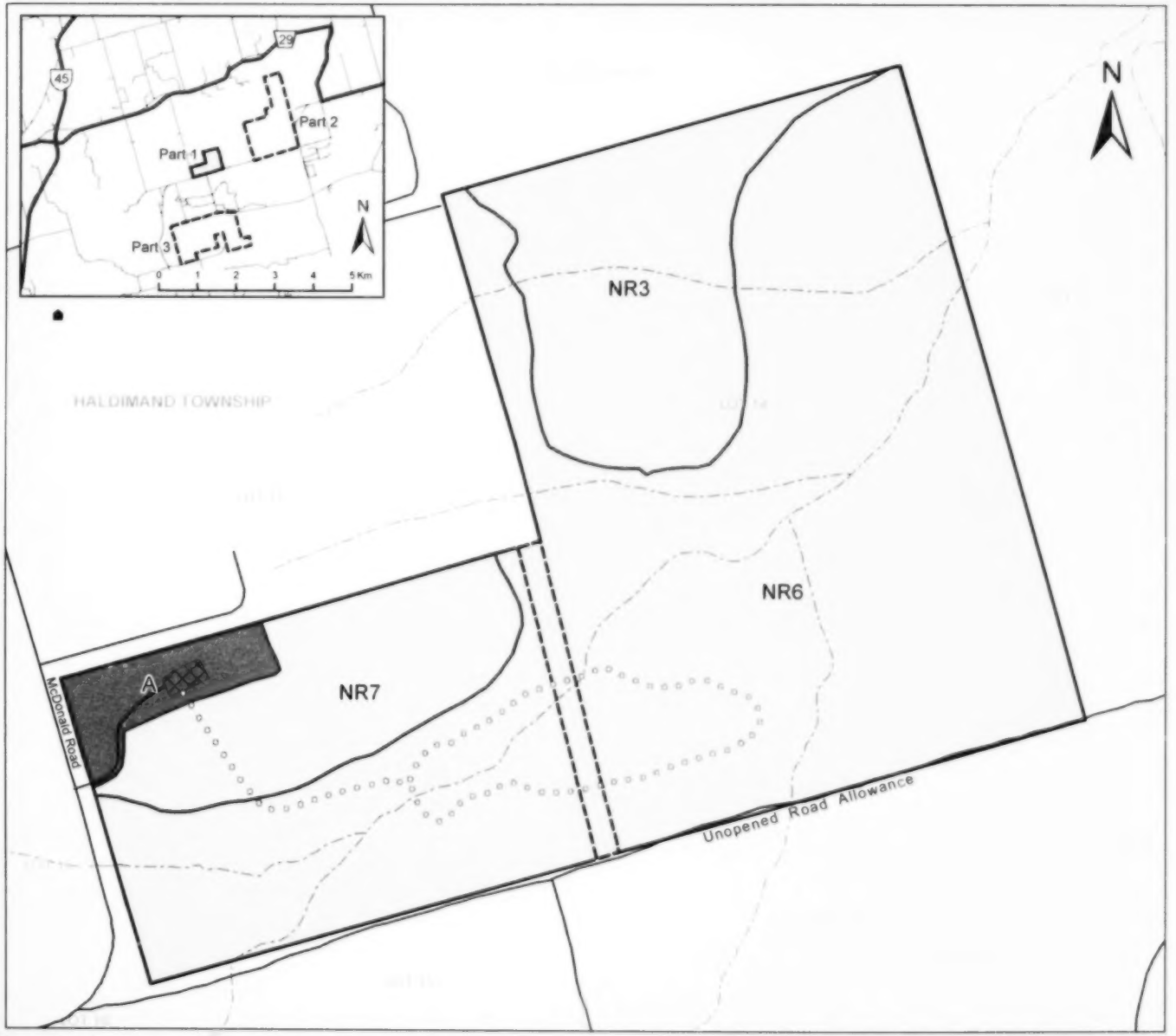
8.2.1. Zone A1

(1.0 ha)

This zone consists of the existing entrance road and parking area within Part 1 of the park. The designated hiking trail originates within this zone. The park entrance road is within a 15 m road right of way.

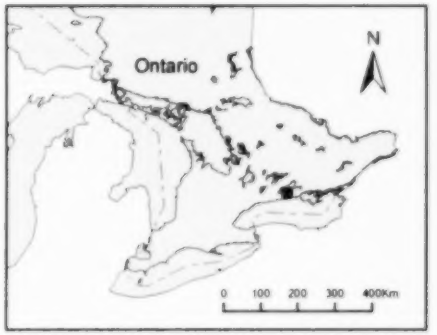
Based on the low use of Parts 2 and 3 of the park (the Burnley-Carmel addition), active resource management prescriptions and the need to limit use to protect significant features, an additional access zone is not proposed for this property.

FIGURE 2 **Proposed Zoning - Part 1**



ONTARIO PARKS

Peter's Woods



Legend

- Building
- Trail
- Intermittent Streams
- Lots
- Park Boundary Regulated
- Park Boundary (Proposed)
- Parking Lot
- Access Zone (A)
- Nature Reserve Zones (labelled as NR#)

0 50 100 150 200 m

Ontario

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This map is illustrative only. Do not rely on it as being a precise indicator of routes, locations of features, nor as a guide to navigation.

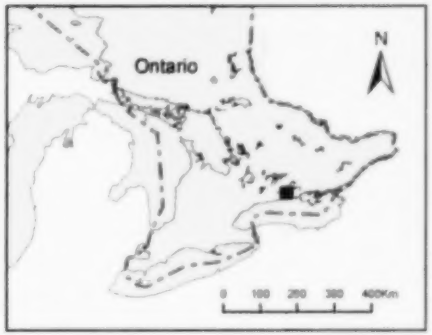
Projection: UTM Zone 18
Datum: North American Datum 1983
Base derived from: NRVIS (Natural Resource Value Information System)
Produced by: Ontario Parks, Southeast Zone

FIGURE 3

Proposed Zoning - Part 2

ONTARIO PARKS

Peter's Woods



Legend

- Buildings
- Roads
- Trails
- Rivers/Streams
- Lots
- Park Boundary (Proposed)
- Nature Reserve Zones (labelled as NR#)

0 100 200 300 400 500 m

Ontario

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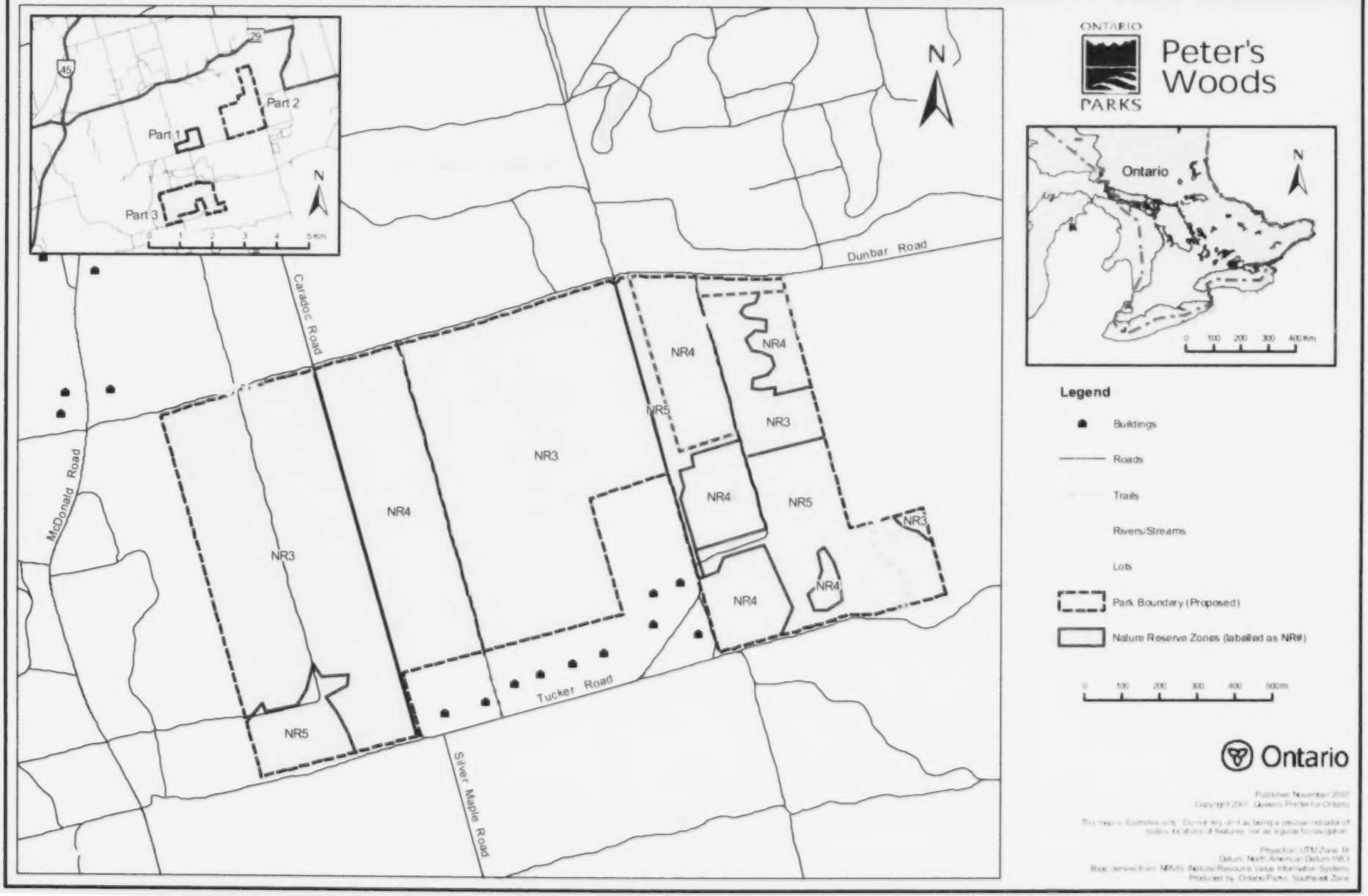
This map is illustrative only. Do not rely on it as being a precise indicator of routes, locations of features, nor as a guide to navigation.

Projection: UTM Zone 16
Datum: North American Datum 1983
Base derived from NRVIS (Natural Resource Value Information System)
Produced by: Ontario Parks, Southeast Zone

FIGURE 4 **Proposed Zoning - Part 3**



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Projection: UTM Zone 16
Datum: North American Datum 1983
Base derived from: NRVIS (Nature Resource Value Information System)
Produced by: Ontario Parks, Southeast Zone

9. Resource Management Policies

Peter's Woods Provincial Park will be managed in accordance with the policies as set out in Ontario Provincial Parks: Planning and Management Policies for nature reserve class parks. The following policies will guide the management of park resources consistent with the *Endangered Species Act*, the *Provincial Parks and Conservation Reserves Act* and with the requirements of the *Environmental Assessment Act*. All resource management projects will be undertaken consistent with A Class Environmental Assessment for Provincial Parks and Conservation Reserves.

Non-native species means species not native to Ontario. Non-native species will not be deliberately introduced. Invasive species means species that are likely to spread and negatively affect native ecosystems. Where possible, actions will be taken to eliminate or reduce the threat of invasive species that may be affecting the diversity of naturally occurring populations. Where non-native species are already established and threaten natural or cultural values, a program of control may be undertaken if feasible and practical.

Extirpated native species may be reintroduced, and existing populations replenished, if ecologically feasible and acceptable, and desirable for perpetuating park values.

Resource management initiatives may be accomplished through partnerships.

An adaptive management approach will be applied to resource management activities within the park. Adaptive management allows for frequent modification of management strategies in response to monitoring and analysis of the results of past actions and experiences. Adaptive management is a systematic, practical approach to improving resource stewardship.

The aim of management and restoration in nature reserve zones will be to perpetuate the natural heritage values which the zone has been established to protect. Management and restoration will generally mean maintaining or restoring the ecological integrity of natural environments, at which point those environments will be left to evolve naturally and without human interference, except as specifically prescribed in this plan or subsidiary implementation plans. In some cases, continuing active management to maintain a particular habitat condition or stage of natural succession (for example, an old field) may be justified if it contributes to the park's overall biodiversity.

Natural processes will be used except where other approaches are specifically prescribed by this plan. Priority will be given to restoration techniques that are judged to be most likely to succeed and to have the most substantial positive impact relative to cost. Visitor education will be fundamental to successful implementation. Appropriate scientific research and monitoring of the park's ecological processes will also be encouraged.

9.1 Industrial / Commercial Uses

The following uses are not permitted in Peter's Woods Provincial Park:

- Commercial forestry.
- Prospecting, staking mining claims, developing mineral interests, working mines.
- Extraction of sand, gravel, topsoil or peat.

- Commercial hydroelectric power development.
- Commercial trapping.

9.2 Land and Water

The landforms and water features present do not require specific management activities.

There are a few existing private licenced pits in the park area, however none are located directly adjacent to the park boundary. The Oak Ridges Moraine Conservation Plan prohibits pits within the "Natural Core Area", which includes most lands directly adjacent to the park, excepting some lands south of Part 3. Natural environment concerns will be considered through the review process under the *Aggregate Resources Act* and also as required by the Oak Ridges Moraine Conservation Plan.

9.3 Vegetation

Except where there is a threat to public safety, threat from invasive species or as required for management actions approved by this section of the plan, dead trees will be left standing, and if cut or when they fall on their own, they will be left where they fall.

Trees and brush may be cut or pruned to enable resource management authorized by this plan or a subsidiary implementation plan or to ensure public safety.

Populations of rare and significant plant species may be periodically monitored to ensure their continued health. Specific enhancement or re-introduction programs may be developed where appropriate. Alien or non-native plant species will not be intentionally introduced and will be controlled if they are shown to be negatively affecting the health of native species. Control of invasive species will follow the direction in the *South Eastern Zone Invasive Exotic Plant Management Strategy* (Ontario Parks 2003), *Peter's Woods Ecological Survey, Monitoring and Stewardship* (Brdar 2005) and the policies of this plan. Insect or disease control will occur only where there is a threat to the park's natural features.

Chemical fertilizers will not be used in the park. Chemical herbicides, pesticides and suppressants will not be used for any vegetation management purpose except for:

- insect and disease control and fire suppression under the conditions set out in this section of the plan;
- eradication of non-native species where it has been demonstrated that other methods with less residual impact on the park's environment are not feasible; and
- control of poison ivy (*Rhus radicans*) on designated trails (i.e. within Part 1) where necessary to ensure visitor health and safety.

Where control is undertaken, it will be directed as narrowly as possible to the specific species so as to have minimal effects on the rest of the park's environment.

The restoration of degraded environments will be given a high priority. The park includes numerous areas of Scots pine that are shading out tallgrass prairie plants and other native communities. Invasive non-native plants and lack of managed fire are two management issues that are in need of attention and for which policy is discussed below.

The Park Superintendent may close areas of the park during resource management activities.

In addition to the management prescriptions in Section 9.3.1 below, the details within the appendices of this plan will direct vegetation management activities within the park until a vegetation management plan is developed.

9.3.1. Management Prescriptions

Vegetation communities have been inventoried and classified according to the Ecological Land Classification of Southern Ontario (ELC) protocol (Lee *et al* 1998). Field investigations conducted on the property have identified 31 vegetation community types. These community types are listed and described in detail in Appendix 1.

The community types can be grouped into six community classes: cultural; forest; tallgrass prairie, savannah and woodland; marsh; sand barren; and swamp. These community classes are more fully described in Appendix 2. The definitions of tallgrass prairie and oak savannah follow that as put forth by Lee et al. (1998). When areas did not fit within the given definition, notes were made to document this. Vegetation communities within Part 1 of the park are described in further detail in *Peter's Woods Ecological Survey, Monitoring and Stewardship* (Brdar 2005).

Tall grass prairie and savannah require active management to remove and control native and non-native woody stems, grasses and forbs that compete with the rare native prairie species. A variety of techniques have been used at other sites. The following techniques have been considered for use at Peter's Woods and are recommended for use singly or in combination: prescribed burning, woody stem cutting, artificial fuel, herbicides, mowing, and seeding. These techniques are described in detail in Appendix 3. Other techniques may present themselves in the future before the next review of this plan. If deemed appropriate for Peter Woods after rigorous scrutiny, they may be utilized.

Prescribed burning is the deliberate, planned and knowledgeable application of fire by authorized personnel to a specific land area to accomplish pre-determined objectives. Prescribed burning is an approach currently being used in several provincial parks in Ontario to restore prairie and savannah habitats. It is an approach being used within other lands in the Rice Lake Plains, including Alderville First Nation Reserve and Northumberland County Forest. Supporting the ecological role of fire in unique or threatened ecosystems is a management objective of the *Forest Fire Management Strategy for Ontario* (MNR 2004), which provides the following management direction: "*Prescribed burning is recognized as a management tool with which to meet ecosystem renewal or hazard reduction objectives within this Zone* [Southern Ontario Zone]."

Prairie and oak savannah restoration will occur within zones NR1-4 in stages throughout the 20 years of this plan, and prescribed burning will be the primary technique. Unless enhanced or alternative direction is required, plans for prescribed burning will be developed in accordance with the Forest Fire Management Strategy for Ontario, the MNR Prescribed Burn Policy and its associated MNR Prescribed Burn Planning Manual, in cooperation with Haliburton Fire Management Headquarters. In A Class Environmental Assessment for Provincial Parks and

Conservation Reserves, projects undertaking prescribed burning and conforming with the above direction have been assigned as a Category A project, and planning and implementation of these projects is allowed to proceed. The first Category A project prescribed burn in Peter's Woods occurred in spring of 2006 and involved approximately 13 ha of the park within zones NR1 - 3.

Active management to restore these areas may also consist of removing non-native species (e.g., Scots pine). Depending on site quality, a higher level of work to remove non-native species will be required in some areas in preparation for prescribed burning.

Management of plantation areas in zone NR4 will require thinning of planted native pines (e.g. red pine, white pine) and thinning or removal of the non-native Scots pine, which are acting as seed sources and increasing the amount of non native species in the area. A plantation restoration plan will be developed to guide the amount of thinning in these areas.

Merchantable timber resulting from forest management may be removed. Winter would be the best time to remove the trees, so that snow cover prevents the ground layer from being disturbed, which will minimize potential for introducing non-native species.

In zones NR5 and NR6, natural processes will be allowed to continue. Non-native species will be monitored and controlled as necessary.

The non-native Scots pine established in zone NR7 will be removed.

Detailed management prescriptions by vegetation community type are found in Appendix 2.

9.4 Inventory and Monitoring

Planning and management decisions are intended to ensure the ecological sustainability of protected areas (which includes social and economic components).

Ontario Parks will ensure that these decisions are made with the best available information. Where this information is lacking, Ontario Parks may conduct inventories and monitoring, as necessary, to provide this information. Such efforts will be undertaken based on established methodologies and best practices.

This will foster an adaptive management approach to protected areas management. The following are broad approaches to identifying inventory and monitoring needs: management actions identified in this management plan; public input; routine park maintenance activities; staff knowledge and experiences and environmental scans.

Monitoring and data collection are essential to adaptive management at Peter's Woods. Permanent monitoring sites, including transects and photo monitoring, have been established to allow for assessment of the effects of management. Monitoring programs that are presently in place and may continue are fully described in Appendix 4.

Priority monitoring projects include:

- Assessment of effects of active vegetation management (e.g. prescribed burning, plantation thinning / naturalization).

- Monitoring changes over time in older-growth forest heath and old field habitat succession.

9.5 Forest Fire Management

MNR recognizes fire as an essential ecosystem process, fundamental to restoring and maintaining the ecological integrity of protected areas in the Deciduous Forest Region.

Fire management involves the protection of values and the attainment of resource stewardship objectives through two main areas:

- Fire response: The protection of people, property and natural areas from wildfire, and,

- Fire use: The strategy of maintaining fire as an ecological process or meeting resource management objectives through the application or management of prescribed fire.

The *Forest Fire Management Strategy for Ontario* (MNR, 2004) provides strategic direction for the management of wildfire across Ontario. Peter's Woods Provincial Park is in the Southern Ontario Fire Management Zone according to this provincial strategy.

This fire management zone is located Outside the Fire Region (OFR). Municipalities have a mandate to provide forest fire protection on all lands outside the fire region. Municipalities have the lead in fire protection and management activities under the *Fire Protection and Prevention Act* (i.e. to protect human lives and properties) and through municipal by-laws. The Haldimand Township fire department is responsible for fire protection and response in the park area. Ontario Parks will pursue an agreement with the municipality for management of forest fires occurring within the park, in accordance with OMNR policy on *Fire Management South of the Fire Regions* (FM:2.04).

Fire management within Peter's Woods Provincial Park will help to restore and maintain ecological integrity while preventing personal injury, value loss, and social disruption. In particular, fire management will help to:

- Perpetuate naturally occurring vegetation communities and their underlying ecological processes; and

- Enhance habitat for prairie and savannah flora and fauna (**Section 9.3**).

Fires that pose a threat to public health and safety, property and infrastructure, or other values are a priority for suppression. An agreement on fire suppression will be reached through consultation with the Park Superintendent, the Haldimand Township fire department and authorized MNR fire management personnel. MNR fire management may support the Haldimand Township fire department in severe or extraordinary fire situations.

"Light on the land" fire suppression techniques will be addressed in the fire management agreement and used wherever feasible. These minimal impact suppression techniques do not unduly disturb natural values. Examples may include limiting the use of heavy equipment or the felling of trees during fire response.

In order to provide detailed direction on the use of fire to achieve ecological or hazarded reduction objectives Ontario Parks will write a Statement of Fire Intent as directed by the *Fire Management Policy for Provincial Parks and Conservation Reserves*. This statement will be developed in consultation between the Park Superintendent and MNR fire management personal.

Direction for prescribed burning within the park is provided in **Section 9.3.1**.

9.6 Fish and Wildlife Management

Fish and wildlife management will focus on achieving a healthy and diverse natural environment. Natural succession will be the primary means of achieving this objective.

Rare and significant wildlife species may be monitored periodically to ensure their continued health within the park. Protection and recovery plans may be implemented as necessary for the perpetuation of such species.

Animal populations or individual nuisance animals may be controlled when essential to protect human health and safety, the health of species outside the park, or the values for which the park has been established. Conflicts that have arisen between visitors and healthy native animals mainly due to visitor behaviour such as feeding and littering and not considered as endangering human health and safety will normally be dealt with through visitor education rather than animal control. When animal control is necessary, it will be subject to any environmental assessment requirements and techniques will be used that have minimal effects on other components of the park's environment.

Appropriate methods of population control may be undertaken directly by Ontario Parks, or through partnerships under the supervision of Ontario Parks.

Reestablishment of native prairie plant species can be negatively affected by overbrowsing by wildlife. Ontario Parks will periodically assess the effects of white-tailed deer (*Odocoileus virginianus*) browse on vegetation in the park to determine whether management action is required. If research indicates that the number of deer in the area is a concern and control is necessary, Ontario Parks staff will work with MNR Peterborough District staff to determine deer management options in the surrounding landscape, and if necessary a resource stewardship plan (e.g., deer herd reduction plan) would be undertaken to determine management actions within the park in the context of the broader landscape.

9.7 Species at Risk

Species at risk will be protected consistent with the *Endangered Species Act* and regulations. Species found within a recommended or regulated provincial park that have been identified on the Species At Risk in Ontario list by MNR as Endangered (not regulated), Threatened or Special Concern will be afforded the same level of protection as an Endangered species listed in regulation under the *Endangered Species Act*.

Populations of species at risk and rare plants will be monitored. The park may undertake management actions for species at risk as supported by research and directed through approved recovery plans or other species specific management plans.

Research by qualified groups or individuals that is related to protection of species at risk will be encouraged when it may aid in species protection and recovery (**Section 10.3**).

9.8 Cultural Heritage Values

There are no known archaeological sites within the park. Further study will be encouraged. Management strategies for any archaeological sites found in the future may range from allowing the site to evolve without human interference, to research, excavation, and rehabilitation. Strategies would be consistent with protection requirements of other significant features in the area. Protection and management will be undertaken in consultation with the Ministry of Culture and First Nations and consistent with *A Technical Guideline for Cultural Heritage Resources for Projects Planned Under the Class Environmental Assessment for MNR Resource Stewardship and Facility Development Projects and the Class Environmental Assessment for Provincial Parks and Conservation Reserves* (MNR 2006).

Significant cultural features will be protected from incompatible development wherever they occur in the park. Incompatible resource uses and recreational activities will be restricted or prohibited where necessary to protect significant cultural heritage values. Archaeological and historical artefacts may only be removed and heritage landscapes altered as part of approved cultural heritage research or management projects.

If an archaeological assessment is undertaken in the future, the zoning for the park may be modified if it is determined that any concentrations of cultural heritage sites require management different from that provided in current zoning.

10. OPERATIONS POLICIES

The park will remain a non-operating provincial park. Wherever necessary, implementation of the policies stated below will be consistent with the approved Ontario Provincial Parks Minimum Operating Standards.

Self-serve facilities may be developed, and individual volunteers and partner organizations may be involved in park programs, to ensure that park operations continue to meet standards.

MNR staff may use mechanized vehicles (e.g. snowmobiles, motor vehicles) in the park to the extent necessary for efficient park management, resource management (e.g., prescribed burn) and operations. Where this use is necessary, consideration must be given to minimizing long-term damage to vegetation and other natural values. In approving research applications (**Section 10.3**), Ontario Parks may authorize researchers to use motor vehicles to the extent necessary for research to be conducted safely and efficiently. Both Ontario Parks' staff and approved researchers will conform wherever possible to the limitations applicable to recreational users, and will travel through the park on foot wherever possible. If deemed necessary, any other public agency may use any craft or vehicle for emergency rescues in the park, subject to the approval of the park superintendent. To reduce the risk of introducing non-native vegetation species to the park, mechanized vehicles used in the park interior for park resource management or operations should be washed prior to entering the park.

10.1 Recreation Management

Permitted recreational uses within the park are based on the policies of Ontario Parks, which establish what recreational activities and facilities are appropriate in nature reserve class parks.

Hunting will not be permitted within the park. ATV use, snowmobiling, horseback riding, and mountain biking are some of the other recreational activities that are not permitted in Peter's Woods.

Geocaching may be permitted at the discretion of the park superintendent based on consideration of the active resource management prescriptions for the park and the need to limit use to protect significant features. Access to geocache sites would be restricted to park hiking trails only.

Permitted day use recreational activities are listed below and are in accordance with the policies for nature reserve class parks as set out in Ontario Provincial Parks: Planning and Management Polices (1992):

- Canoeing / kayaking
- Cross-country skiing
- Hiking
- Historical appreciation
- Nature appreciation
- Painting / photography
- Picnicking (access zone)
- Snowshoeing
- Sport fishing

Fishing will be allowed within Burnley Creek in accordance with Ontario Fishery Regulations made pursuant to the *Fisheries Act* for those waters.

Water-based activities such as canoeing and kayaking will be allowed on Burnley Creek.

Trails in the park will be for pedestrian use. The existing designated hiking trail within zones NR6 and NR7 in Part 1 of the park will continue. This trail may be extended through the area of Zone NR3 in Part 1 if resource management prescriptions permit. Low intensity pedestrian use of existing, undesignated trails within Parts 2 and 3 may continue, unless this use is determined to be negatively affecting significant values.

Where deemed necessary, surfaces such as crushed rock screenings or wood chips may be added to park trails to reduce compaction of soil, damage to exposed roots and the possibility of user injury. Trails will be clearly marked and signed to reduce deviation from the main route. Boardwalks, bridges and stairs may be constructed along trails to assist with erosion control and to ease travel in difficult terrain.

In keeping with the park objectives, given the sensitivities of the site, limited facilities and active management prescriptions, promotion for ecotourism is not appropriate.

Appropriate signs may be placed at the boundary of the park to indicate its class, and to identify activities that are prohibited within the park. Closure of trails that originate from the road

allowances will be necessary. Fencing or barriers may be used to control access at appropriate locations.

Vault privies may be may be replaced or installed within the access zone as needed and as funding permits.

10.2 Natural Heritage Education

Natural heritage education in provincial parks is intended to develop visitors' awareness and appreciation of Ontario's natural and cultural heritage, fostering a commitment to protecting that heritage for all generations. Natural heritage education opportunities are meant to be educational and recreational, formal and informal, and accessible to all.

There are three components of natural heritage education in parks: information, interpretation, and outdoor recreation. The level of service that each park provides depends on its significance and visitation. At Peter's Woods, heritage education is at the self-use, or minor activity level. The park does not have dedicated interpretive staff. Information about the park and park system will be provided. Natural heritage education at the park will be consistent with the Southeastern Zone Natural Heritage Education Strategy (Ontario Parks 2007).

10.2.1. Interpretation

Interpretation in Peter's Woods will generally be low-key. Emphasis will be placed on interpreting the most significant natural features of the park and illustrating their importance within the context of the greater ecosystem. The self-guiding trail system with associated signage and trail guide publication will provide the medium for interpretation. Development of permanent information display panels, in cooperation with the Willow Beach Field Naturalists, will be considered when resources become available.

The main interpretive themes for Peter's Woods will be:

- value & functioning of the older-growth forest;
- prairie and savannah ecosystem / restoration;
- vegetation succession (old fields); and
- Oak Ridges Moraine physiography.

10.2.2. Information

The information focus of heritage education at Peter's Woods will include, but not be limited to:

- describing the park, its natural features, facilities and management objectives, and pertinent rules;
- facilitating understanding, appreciation and enjoyment of the older-growth forest and tallgrass prairie and savannah habitats;
- increasing public awareness and understanding of prescribed burning, and the benefits of this management technique as a restoration tool for certain vegetation communities/types;
- increasing public awareness of the issues related to non-native and invasive species;
- increasing awareness of the objectives and benefits of nature reserve class provincial parks;
- instilling in visitors a sense of respect for the park environment;
- providing a way for park visitors and stakeholders to communicate with Ontario Parks; and
- providing emergency contact information.

This will be achieved through publications, specifically the park brochure and trail guide, signage, an on-site guest book and informal public meetings with naturalists and other user groups. Feedback will allow for planning and management that is responsive to visitor needs and preferences that are appropriate to the park. This will also allow staff to assess visitor use, patterns and attitudes.

10.2.3. Outdoor Recreation

Outdoor recreation will be focussed on low-intensity pedestrian travel on the trail within the original park. Outdoor education field trips by small organized groups (e.g., schools, scouts) are permitted, so long as use is limited to the designated trail. Small groups with particular interest in the resources of Peter's Woods are especially encouraged.

10.3 Research

Research by qualified individuals that contributes to knowledge of natural and cultural history and to environmental and recreational management will be encouraged.

All research will be conducted by Ontario Parks, or authorized by Ontario Parks. Research projects will be administered through park policy directive PM2.45 (Research Activities in Provincial Parks) and requires a research permit. Research must also meet all requirements under applicable provincial and federal legislation. Approved research and monitoring activities must be consistent with Ontario Parks' research and Information Strategy (1997), and the *South Eastern Zone Research and Information Strategy* (Ontario Parks 2001). Sites altered by research activities will be rehabilitated as closely as possible to their previous conditions.

The following general fields of research are particularly appropriate to Peter's Woods and will be encouraged:

- landforms, vegetation, wildlife, and archaeology of the park;
- evolution of the park's landscapes in relation to natural processes and human activity;
- ecological restoration and management in the park;
- the status of species at risk and other rare species and communities; and
- optimal relationships between heritage protection and recreational enjoyment within the park.

10.4 Partnerships

Formal partnership agreements may be established between Ontario Parks, First Nations and third parties. Partners will represent the local community, and local and provincial interests. Partners will work with Ontario Parks to implement the approved park management plan and follow provincial park policies and regulations.

10.4.1. Current partners

The Willow Beach Field Naturalists is a not-for-profit organization that has been a partner with the park for over 30 years, and since 1995 has been providing invaluable assistance in the maintenance of the original park's parking lot, trail, privies and general maintenance and assistance with the interpretive guide. The organization provides about 100 hours of volunteer work per year, and prepares a report annually on their activities.

In 2002, Ontario Parks and the Nature Conservancy of Canada purchased the 317 ha Burnley-Carmel property for addition to Peter's Woods Provincial Park. The 46 ha Alderville Woods property located south of Rice Lake had been secured the previous year as part of a partnership between Lower Trent Conservation Authority and NCC. The County of Northumberland owns 1052 ha within the Rice Lake Plains. These large anchor properties and smaller private properties contain significant amounts of globally threatened prairie and savannah that are in need of restoration.

NCC took a leading role in bringing groups together to discuss partnerships and planning the needs and requirements for the protection and restoration of lands within the Rice Lake Plains. Discussions resulted in the signing of the Rice Lake Plains Joint Initiative (RLPJI) Memorandum of Understanding that took effect in September of 2003. Current partners in the initiative are Alderville First Nation, The Corporation of the County of Northumberland, Ganaraska Region Conservation Authority, Lower Trent Region Conservation Authority, The Nature Conservancy of Canada, Northumberland Land Trust and Ontario Parks. The goal of this partnership is the protection and enhancement of globally and provincially threatened tallgrass prairie and savannah within the Rice Lake Plains. To date, funding for a total of four years was applied for and received from the Oak Ridges Moraine Foundation. The RLPJI involves four components: Inventory and Assessment; Management Planning and Implementation; Site Conservation Plan; and Communication Planning.

11. DEVELOPMENT POLICIES

All development undertaken by Ontario Parks, or by partners on its behalf, will comply with *A Class Environmental Assessment for Provincial Parks and Conservation Reserves* (2004), and will be carried out in accordance with approved site and development plans that meet development standards for provincial parks.

Development within the access zone will be limited to the existing entrance road, gates, and parking area and vault privies, and may be maintained as necessary. Development within nature reserve zones will be limited to self-use, pedestrian, interpretive trails and associated fence crossing / viewing platforms. Fences along the park boundary will be maintained to discourage uses that could damage the park's environment.

Any areas proposed for development will require prior assessment for significant cultural heritage features and natural values - such as species at risk or significant communities - to ensure these values are identified and protected.

11.1 Trails

In Part 1 of the park, the pedestrian trail may be extended within some areas of zone NR6 and NR7 to create a trail into zone NR3 if resources and management prescriptions permit. The footprint of the trail within the older-growth deciduous forest community of zone NR6 will not be increased.

Within Parts 2 and 3, all or parts of the existing undesignated trails may be integrated into a modest network of hiking, snowshoeing and cross-country ski trails. This proposed network of trails will depend on local interest, the availability of funding and timing and extent of resource management activities (e.g., prescribed burning). This trail network will be designed to highlight

the natural features of the park and to minimize its environmental impact. Access points for this trail network may be appropriate and would require amendment to the zoning plan for the park.

The Oak Ridges Trail (ORT) Association recently expressed interest in proposing use of the existing hiking trails within Part 2 of the park as part of an ORT extension, linking to the Northumberland County Forest. Such a proposal would be evaluated under A Class Environmental Assessment for Provincial Parks and Conservation Reserves.

Proposed locations and standards of development for new trails will be made available for public review and comment before the trails are built.

12. IMPLEMENTATION STRATEGY

Park development, operations and resource stewardship will be contingent upon the availability of funding and unforeseeable changes in priorities or policy. Implementation of the management plan and operation of the park will meet the requirements of the *Environmental Assessment Act*, *Environmental Bill of Rights*, *Provincial Parks and Conservation Reserves Act*, *Endangered Species Act*, and other pertinent legislation.

All aspects of park management, development and operation will be undertaken in accordance with the requirements of A Class Environmental Assessment for Provincial Parks and Conservation Reserves.

In the implementation of the approved park management plan, Ontario Parks may pursue opportunities for partnerships involving other agencies and groups.

Unless otherwise identified in this document, implementation priorities may be established in subsidiary operating and resource stewardship plans. Preparation of these plans may involve an appropriate level of public consultation.

Implementation priorities include:

- undertake vegetation management in accordance with Section 9.3 (e.g., prescribed burning, removal of Scots pine);
- prepare a plantation restoration plan (with guidelines for thinning areas in zone NR4)
- initiate MNR land use amendment and regulation process for proposed park additions;
- install fencing, barriers, gates and signs as required;
- develop suitable interpretive materials;
- prepare a trail management strategy;
- prepare a park operations plan; and
- establish a Forest Fire Management Agreement.

13. PLAN AMENDMENT AND REVIEW

The park management plan can be reviewed or amended to address changing issues or conditions. At ten year intervals, this plan will be assessed for the need for a review or amendment. A review may involve a reassessment of all or part of the plan, including classification, zoning, goal, objectives and all resource management, operations and development policies. An amendment can be considered to address specific issues or needs.

14. CONSULTATION

Ontario Parks is committed to consultation with government agencies, other ministries, First Nations, interest groups and the public throughout this management planning process.

The methods of consultation utilized during release of park management planning documents were as follows:

Mailing Lists

Mandatory Mailing List – as per Provincial Park Policy (PM 11.02.02)
Individuals/groups/agencies that responded to the Invitation to Participate
New individuals/groups who request to be added to the mailing list at any stage

Newspaper advertisements

Newspaper advertisements or notices were placed in the following newspapers:
Peterborough Examiner
Cobourg Daily Star
Brighton Independent
Campbellford Community Press

Environmental Registry

Policy proposal notices posted on this website advertised the opportunities for the public review.

Ontario Government

All planning documents were available at the Ontario Parks South Eastern Zone office in Kingston, and the MNR Peterborough District Office.

There are four stages in this park management planning and consultation process:
- Invitation to Participate (stage 1)
- Background Information and Issues and Optional Approaches (stage 2)
- Preliminary Park Management Plan (stage 3)
- Approved Park Management Plan (stage 4)

There have been two previous consultation opportunities during the management planning process, as outlined below, and responses were considered in determining proposed policy.

In stage 1, public and First Nation involvement in the development of the management plan for the park began in August of 2004, with the mailing of the invitation to participate to individuals and groups believed to have an interest in this project. The invitation announced a 45 day opportunity for public review and comment on the terms of reference for the project. In addition to requests to be added to or removed from the project mailing list, 11 respondents confirmed interest in the project and / or submitted comments on the management planning process during this stage. Specific comments submitted during this stage related to the following issues: park classification, cultural resource protection, tallgrass prairie restoration, and securement of adjacent lands.

In stage 2, a background information file and an issues and optional approaches summary document was released in mid-June of 2005. The background information file was available for review in government offices in Kingston and Peterbourgh and at the Cobourg Public Library. About 180 copies of the issues and optional approaches summary document and an

accompanying questionnaire were distributed by mail to individuals and groups on the project mailing list. The document proposed a classification and zoning policy for the park; summarized the most important planning and management issues that had been identified; and proposed policy options for these issues. Respondents were invited to submit comments to Ontario Parks by August 13, 2005. The following is a summary of the comments received during stage 2 of the planning process.

14.1 Response to Issues and Optional Approaches Summary document

The total number of responses received was 17, of which 16 were completed questionnaires. Two of the respondents that submitted completed questionnaires provided additional comments in a cover letter or attachment. The other response consisted of comments regarding the map included in the mailing.

Five respondents were members of or represented the interests of a specific interest group or municipality or other agency.

Twelve of the respondents were local landowners or residents of the local area (Brighton, Cobourg, Cobourne, Port Hope, Roseneath, Warkworth).

The questionnaire identified four management issues and requested comments on these specific issues. Management options were provided for each issue. The text included below describing each issue is taken from the June 2005 summary document.

14.1.1. Protection of Natural Values (Zoning)

The intent is to add the Burnley-Carmel property to Peter's Woods Provincial Park, resulting in a single larger nature reserve class park. Nature reserve park classification is most appropriate for Burnley-Carmel, given its size, the significant habitats and rare community types within the properties, the opportunity to restore oak savannah and tallgrass prairie communities, and its location within the Oak Ridges Moraine. A new zoning plan will be developed for Peter's Woods and the Burnley Carmel properties. The values to be protected include deciduous woodland with older-growth characteristics, and oak savannah and prairie habitat remnants. The existing zoning for Peter's Woods will be re-evaluated to ensure it appropriately reflects the values of the park and protection, planning and management needs. Appropriate zones for the Burnley Carmel properties will be determined. All of these zones will be combined in a single zoning plan. The bulk of the park will be divided into nature reserve zones, determined by distinct resource management needs (e.g. the existing nature reserve zone within Peter's Wood's would be split into three such zones based on updated resource inventory information; Burnley Carmel would be similarly allocated). The existing access zone (parking area) at Peter's Woods would continue. An optional approach for access is to create a new small access zone within the Burnley-Carmel addition to serve as a second staging area for the park if use warrants it.

Responses supporting status quo (one access zone within the existing park) – 9
Responses supporting additional access zone (s) – 7

Comments:

- prefer nature reserve zoning
- properties are fragmented so more than one access point is needed (one respondent suggested a general location for additional access)
- Peter's Woods is best left as is, but make access and interpretive trails in Burnley-Carmel where suitable (ecologically)
- retain Peter's Woods as nature reserve class park (protection)
- adding more access zones may encourage damage to ecosystem (ATVs, hunting etc.)
- two respondents suggested locations for access zone(s) in the Burnley-Carmel addition
- apply environmental protection zoning for wetlands if needed
- A representative of the Ontario Federation of Anglers and Hunters expressed concern with the designation of Nature Reserve for Burnley-Carmel addition and suggested that the westerly block of Burnley-Carmel in particular should be given a natural environment class park or Conservation Reserve designation to conform with existing compatible adjacent land uses

14.1.2. Restoration of Oak Savannah and Prairie Habitats

There are two distinct categories of management objectives and policies for nature reserve class parks:

- protect natural features and conditions in an undisturbed state, allowing for natural succession (evolutionary management); and
- protect natural features and conditions that require specific active resource management to ensure their perpetuation at a particular evolutionary stage and prevent natural succession (era management).

In the second category, era management, natural features and conditions are actively managed to prevent natural succession. For example, prescribed burns can be applied to vegetation communities like oak savannahs and prairies that require natural cycles, like fire, in order to persist. Historically these habitats persisted as a result of these natural cycles, but since European settlement habitat loss and control of natural cycles have resulted in much of this habitat being lost and most remnants being severely degraded. In these situations, active management to restore vegetation communities can be undertaken to meet specific objectives of the provincial parks system, like protecting representative ecosystems of the provinces' diverse biology. Otherwise, these communities over time are naturally succeeded, as is the case at Burnley Carmel where only remnants remain. This category also applies to management of invasive, non-native species.

Prescribed burning is an approach currently being used in several provincial parks in Ontario to restore prairie and savannah habitats. MNR has a Prescribed Burn Planning Manual (MNR 1997) to guide this management, and supporting the ecological role of fire in unique or

threatened ecosystems is a management objective of the new Forest Fire Management Strategy for Ontario (MNR 2004).

Options are to use active or era management in specific nature reserve zones to restore the significant oak savannah and prairie habitats (e.g., prescribed burn), and remove non-native species that have been introduced to the sites (e.g., cutting and chemical application), and to use evolutionary management in specific nature reserve zones in order to allow natural succession (e.g. mature deciduous woodland areas).

Responses supporting active/era management – 2
Responses supporting evolutionary management - 0
Responses supporting both active and evolutionary management in specific areas – 14

Comments:

- understand and support an active management approach
- this area should revert to rice lake tall grass prairies and oak savannah – the original landscape
- hesitant to comment without knowing resources required, risk and value. It sounds like a lot of resources would be required to maintain something no longer naturally occurring, but education and gene pool value is important so worthy of preserving
- support cutting and herbicide application; oppose use of prescribed burn
- Peter's Woods is fine example of older-growth forest and should allow it to regenerate (clear trail and remove Scots pine etc..); prairie and savannah communities are degraded and need to be logged prior to a burn
- active management must be undertaken taken in the tallgrass prairie savannah areas to restore and preserve these habitats but in other areas (deciduous woodland) practice evolutionary management
- active management for oak savannah and prairie in Burney-Carmel; evolutionary management for wooded areas; natural succession in Peter's Woods – even leave Scots pine as nurse crop for shade tolerant hardwoods; strongly support active management of invasive species (i.e. buckthorn (*Rhamnus sp.*)
- planting of pines 40-60 years ago was to replenish soil – how much is left if you burn the area, why not cut and compost
- could remove invasive plantation trees (Scots pine) and other invasive species (buckthorn)
- removal of introduced species is highly desirable; controlled burns essential; limited natural succession in certain areas useful in education
- some areas better left alone; others need help
- include in management plan an explicit statement allowing for removal of Scots pine without further vegetation management plan

14.1.3. Recreation / Compatible Activities
(4 respondents chose more than one option)

Activities that may be permitted within nature reserve class parks include low intensity day use activities that enhance appreciation of the park, such as hiking, cross country skiing and snowshoeing. Mechanized recreational activities are not compatible with nature reserve class parks. Some mechanized activities are permitted on lands adjacent to Peter's Woods and Burnley Carmel, including use on trails within the Northumberland County Forest. There are unopened road allowances adjacent to Peter's Woods and Burnley Carmel that may result in unauthorized access and use issues. There is a need to ensure the park boundary is clearly marked with signs that identify permitted activities and uses.

An existing hiking trail loop through the deciduous woodland in Peter's Woods provides hiking and nature appreciation opportunities. There are several informal trails existing within Burnley Carmel. Neither area experiences high visitation, although there are many repeat local users. Options for trails include status quo (existing hiking trail loop at Peter's Woods), providing for additional trails within Peter's Woods as directed in the 1990 management plan where compatible with management approaches in those areas, and developing a hiking and interpretive trail within Burnley Carmel where compatible with management approaches.

Responses supporting the status quo – 8
Responses supporting providing additional hiking trails in Peter's Woods – 3
Responses supporting developing a hiking trail within Burnley-Carmel – 9

Comments:

- reservations about trails as it relates to increased traffic noise and dust generated on Pratt Road and adjacent trails
- hiking trails are not the only use these properties should support – these hiking trails become areas where people want exclusive use
- hunting should continue to be permitted in the Burnley-Carmel areas, adjacent land uses must be considered (OFAH)
- need to be able to access the area via hiking trails in order to enjoy and benefit from these valuable resource
- horseback riding is consistent with low-intensity day use and should be permitted
- do everything possible to discourage ATVs in Peter's Woods; expand hiking trails in Burnley-Carmel but be careful they don't turn into dirt bike and ATV trails; lots of poison ivy in Burnley-Carmel (Northumberland Country Stewardship Council)
- personally use nature type hiking trails and view then as educational and as a way of gaining public support for such areas
- may be possible to extend Peter's Woods trails for specific purpose but may result in damage to more sensitive areas (Willow Beach Field Naturalists)

- have a limited number of picnic tables along trails in Burnley-Carmel, especially if low-intensity ecotourism encouraged; clearly mark trails and points of interest

- they are two different areas – Peter's Woods should have little activity, it must be protected (Cramhe Township)

- watch out for Poison Ivy; have land owner permission if on private property

14.1.4. Ecotourism

Peter's Woods is a non-operating park and as such is not highly promoted by Ontario Parks. The Darlington Provincial Park Superintendent has custodial management responsibility for the park. The Willow Beach Field Naturalists maintain the site and monitor use under agreement with Ontario Parks. The International Ecotourism Society defines ecotourism as "*responsible travel to natural areas that conserves the environment and improves the well-being of local people.*" There is some existing use for ecotourism by local bus tours, however, there is limited parking space available. Options include status quo (included on the Ontario Parks website, but not actively promoted in the media), and promoting low intensity ecotourism opportunities.

Responses supporting status quo – 12
Responses supporting promotion of low-intensity ecotourism – 4

Comments:

- prefer human activity to be limited to restoration and scientific endeavours

- Peter's Woods is too small for ecotourism - just look at Point Pelee to see negative effects on environment of over zealous promotion of ecotourism – results in loss of habitat; Burnley-Carmel should be open to some visitors after it is restored

- natural heritage should be enjoyed by locals and visitors, provided park use is managed in an ecologically suitable way

- retain as non-operating park, do not promote, not enthusiastic about promoting Burnley-Carmel and oppose it for Peter's Woods (Northumberland Stewardship Council)

- walking trails only and scientific studies should be encouraged (Willow Beach Field Naturalists)

- opportunity to enlarge significant area in controlled manner; access is desirable but not at the expense of their further depletion

- Peter's Woods hikers only, no motorbikes, snowmobiles etc... (CramaheTownship)

- other than hiking or cross-country skiing / bird watching there is low potential in this area

14.1.5. General Comments

The following general comments were provided in writing.

- A respondent was critical of the Rice Lake Plains map provided with the mailing
- A respondent stated that the Burnley-Carmel area should become a multi-purpose use property and nature reserve may not be the best designation
- A respondent stated that the properties are different and need two specific and different management plans
- A representative of the Ontario Federation of Snowmobiling Clubs - District 2 noted that they propose to enhance snowmobile opportunities within Ontario and at very least wish to be consulted if they are to be excluded from areas now occupied; don't consider ourselves to be an environmental hazard and run an environmental program within our organization
- A respondent noted that since Burnley-Carmel was secured no Scots pine have been removed or savannah restored because of Ontario Parks' requirement of management planning and a vegetation management plan

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Appendix 1. Vegetation Communities within Peter's Woods

Vegetation communities within Peter's Woods according to Ecological Land Classification for Southern Ontario are listed in Table 1 below. Approximate area in ha is based on digital mapping. A description for each community unit is found in Table 2.

Table 1. Peter's Woods Vegetation Types

ELC Community Class	ELC Vegetation Community Unit Code	ELC Vegetation Type	Approximate Area (ha)	Park Zone
Cultural			**136.9**	
	CUM1-1	Mineral Cultural Meadow Type	12.7	NR1, 3, 4
	CUP3-1	Red Pine Coniferous Plantation Type	11.3	NR4, 5
	CUP3-2	Mixed Pine Coniferous Plantation Type	4.1	NR7
	CUP3-3	Scotch Pine Coniferous Plantation Type	68.3	NR3, 4, 5
	CUP3-8	White Spruce Coniferous Plantation Type	3.4	NR3
	CUS1	Mineral Cultural Savanna Ecosite	2.9	NR3
	CUW1	Cultural Woodland Ecosite	34.2	NR3
Forest			**182.7**	
	FOC3-1	Fresh Moist Hemlock Mixed Forest Type	7.7	NR5
	FOD2-4	Dry Fresh Oak Hardwood Deciduous Forest Type	6.5	NR1
	FOD3	Dry-Fresh Poplar-White Birch Deciduous Forest Ecosite	3.5	NR6
	FOD3-1	Dry-Fresh Poplar Deciduous Forest Type	13.7	NR3, 4, 5
	FOD4	Dry-Fresh Deciduous Forest Ecosite	1	NR5
	FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest Type	8.6	NR6
	FOD8-1	Fresh Moist Poplar Deciduous Forest Type	21.1	NR3, 5
	FOD9-2	Fresh-Moist Oak-Maple Deciduous Forest Type	4.7	NR5
	FOM1	Dry Oak-Pine Mixed Forest Ecosite	77.9	NR1, 2, 3
	FOM2-1/2	Dry-Fresh White Pine-Oak/Maple Mixed Forest Type	5.7	NR6
	FOM2-2	Dry fresh Red Maple-White Pine Mixed Forest Type	12.7	NR5
	FOM3-1	Dry-Fresh Hardwood-Hemlock Mixed Forest Type	1.6	NR5
	FOM6	Fresh-Moist Hemlock Mixed Forest Ecosite	6.9	NR5, NR6
	FOM7-2	Fresh Moist White Cedar Hardwood Mixed Forest Type	11.1	NR5
Marsh	MAM3-1	Bluejoint Organic Meadow Marsh Type	4.2	NR5
Sand Barren	SBO1	Open Sand Barren Ecosite	3.4	NR2, 5
Swamp			**12.3**	
	SWC2-2	Hemlock Mineral Coniferous Swamp Type	5.0	NR5
	SWC4-2	Tamarack-Black Spruce Organic Coniferous Swamp Type	2.3	NR5
	SWD7-1	Birch Poplar Organic Deciduous Swamp Type	0.9	NR5
	SWM4	White Cedar Organic Mixed Swamp Ecosite	2.4	NR6
	SWT3-2	Willow Organic Thicket Swamp Type	1.7	NR5
Tallgrass Prairie, Savannah and Woodland			**19.6**	
	TP01-1	Dry Tallgrass Prairie Type	0.5	NR2
	TPS1-2	Dry Black Oak-Pine Tallgrass Savannah Type (degraded)	5.2	NR3
	TPW1-1	Dry Black Oak-White Oak Tallgrass Woodland Type	13.9	NR1

Table 2: Description of ELC Community Units

ELC Community Unit	Dominant Species	Description
CUM1-1 Dry-Moist Old Field Meadow Type	CANOPY *Quercus velutina* *Populus tremuloides* SUB-CANOPY *Pinus sylvestris* SHRUB *Comptonia peregrina* HERB *Centaurea* sp. Graminoides *Pteridium aqulinum* *Fragaria* sp.	There are scattered trees in the community which are less than 10m tall, they constitute less than 10% of the cover and <10cm DBH.. The Sub canopy is 1-3m tall and has <10% cover. The shrub layer is dominated by sweet-fern (*Comptonia peregrine*) with poison ivy and raspberry (*Rubus sp.*). The cover is 10-25% and 0.5-1m in height. The herb layer is the dominant feature of this community with 80-100% cover. Scots pine are seeding into this area from the adjacent plantation. Some of the substrate has been moved, creating mounds of dirt and woody debris.
CUP3-1 Red Pine Coniferous Plantation Type	CANOPY *Pinus resinosa* SHRUB *Rhus radicans* (A) *Rubus* sp. (A) HERB *Pteridium aqulinum* (D)	This red pine plantation is uniformly closed with 80-100% cover. There has been some thinning done in the past. There is moderate regeneration cover dominated by large-tooth aspen (*Populus grandidentata*), black oak, with some white oak, red pine and Scots pine also present. The shrub layer cover is 25-60% with abundant poison ivy and raspberry. The herb layer cover is 25-60% and patchy.
CUP3-2 White Pine Coniferous Plantation Type	CANOPY *Pinus strobus* *Pinus sylvestris* SUB-CANOPY *Acer saccharum* *Fraxinus Americana* *Tillia americana* HERB *Solidago sp.* *Rubus sp.* Graminoides	This is a mixed pine plantation over former disused agricultural land. White pine canopy more closed than Scots pine; spacing, DBH, and regeneration variable. Gaps dominated by *Solidago* and *Rubus* sp. Not described well by ELC. One older *P. strobus* stand (<1 ha). Patchier through Lot 14 than in Lot 15.
CUP3-3 Scotch Pine Coniferous Plantation Type	CANOPY *Pinus sylvestris* SHRUB *Rhus radicans* *Shepardia canadesis* (A) *Comptonia peregrina* *Ceanothus herbaceous* HERB *Pteridium aquilinum* Graminoides	There are two areas of this community: a) This Scots pine plantation has 60-80% cover and is uniformly closed. The canopy Scots pine is in poor condition. The regeneration is high (80-100%) and includes white birch, black oak, Scots pine, black cherry and white oak. The shrub layer has 60-80% cover and is <0.5m tall. The herb layer has 60-80% cover and is <0.5m tall. Tallgrass species are present in the shrub layer. b) A small area between a plantation and a forest, this area is dominated by a combination of Scots pine and trembling aspen (*Populus tremuloides*). Canopy cover is 70%. There is black oak, sugar maple and Scots pine regeneration that is at 60%. Poison ivy and soapberry (*Shepardia canadensis*) dominate the shrub layer. *Poa compressa* is the dominate ground cover species.
CUP3-8 White Spruce Coniferous Plantation Type	CANOPY *Picea glauca* SHRUB Rhus radicans *Comptonia peregrina* HERB Pteridium aquilinum *Hieracium* sp.	This dense white spruce (*Picea glauca*) plantation has a cover of 80-100%. The spruce is dominant with a few large-tooth aspen and balsam poplar (*Populus balsamifera*). The regeneration is low with some black cherry. The shrub and herb layer cover are both less than 10%. Bryophytes make up most of the round cover with 25-60% cover.
CUS1 Mineral Cultural Savannah Ecosite	CANOPY *Populus tremuloides* *Quercus velutina* *Pinus sylvestris* *Prunus pennsylvanica* SHRUB *Rhus typhina* HERB Graminoids – A *Hieracium* sp. – A	This community was previously a plantation that was cleared and left to regenerate. The site has a patchy canopy cover of about 30%. The shrub cover is 25-60% and dominated by poison ivy though there is some sweet fern and New Jersey tea. The ground layer is 25-60% covered with graminoides and hawkweeds as the most abundant, but butterfly milkweed was also found. The ground layer space that remains is covered by lichens (25-60%).
CUW1 Cultural Woodland Ecosite	CANOPY *Pinus sylvestris* *Betula papyrifera* SUB-CANOPY *Prunus serotina* *Fagus grandiflora* *Quercus rubra*	This area was planted with Scots pine and is regenerating into a woodland community. The canopy closure is variable (40-70%). The sub canopy is 3-5m tall with 60% closure. The regeneration is moderate and 1-3m tall with black oak, white ash, black cherry and white oak. The shrub layer is dense (80-100%) and the ground layer has a 25% cover. The community is very patchy with a few inclusions. One inclusion is dominated by tremuling aspen with oak and white birch. Another inclusion has hawthorns, red and black oak, red maple and ash.

	SHRUB *Rhus radicans* *Rubus* sp. HERB *Maianthemum racemosa* *Pteridium aquilinum*	This area has potential to become a good tallgrass community
FOC3-1 Fresh-Moist Hemlock Coniferous Forest Type	CANOPY *Tsuga canadensis* (L)	Hemlock dominated with cedar, white pine and trembling aspen.
FOD2-4 Dry-Fresh Oak-Hardwood Deciduous Forest Type	CANOPY Quercus velutina Populus tremuloides SHRUB Quercus velutina Rhus radicans	This community is on the tableland and is dominated by black oak with sugar maple, trembling aspen and large-tooth aspen in the canopy. The canopy is 70-80 % cover with regenerating black oak, and sugar maple and poison ivy in the understory. Currently an FOD but was a TPW1 based on the species that are present.
FOD3 Dry-Fresh Poplar-White Birch Deciduous Forest Ecosite	CANOPY *Betula papyrifera* *Populus tremuloides* *Fraxinus americana* SUB-CANOPY *Acer saccharum saccharinum* *Fraxinus Americana* *C. cordiformis*	Mainly flat uplands. Successional forest found associated with hedgerows and forest edges – cover varies. Limited to edges of main communities.
FOD3-1 Dry -Fresh Poplar Deciduous Forest Type	CANOPY *Populus tremuloides* *Betula papyrifera* Populus grandidentata SUB-CANOPY *Quercus rubra* *Quercus velutina* *Prunus serotina* SHRUB *Prunus virginiana* *Rhus radicans* *Cornus rugosa* *Rubus* sp. Ceanothus americanus Rhus aromatica HERB Graminoides *Maianthemum racemosa* Centaurea nigrescens ssp. nigrescens (Note: dominant species vary for each area)	There are four separate areas of this community: a) This forest is dominated by trembling aspen but also has some tall spindly black cherry and black and white oak present in the canopy. The density is 80-100% and variably closed. The sub-canopy is 3-5m tall and has a density of 60-80%. The regeneration layer is 1-3m high with 60-80% cover. The species present are large-tooth aspen, white oak, red oak and black cherry. The shrub layer is very dense (80-100%) and 1-3m tall. The ground layer is very dense (80-100%) and < 0.5m tall. b) Trembling aspen with white birch and a few white oak and black oaks dominated this forest. The canopy cover is about 60% with variable closure. The regeneration is moderate with black oak, white birch, trembling aspen and red maple. The shrub cover is moderate with raspberry and poison ivy. The ground layer is moderately dense and dominated by graminoides with bracken fern (*Pteridium aquilinum*) and Canada Mayflower (*Maianthemum canadense*). c) A dense layer of white birch and trembling aspen is present at 10-15m in this community. The area was harvested and used as a landing area to process the logs. Several large pines are cut and decaying on the edge of this community. Large pines have been left in parts of the area but the canopy closure is 10-20% with the subcanopy birch and aspen closure at 80%. A dense small open area where the trail goes through is dominated by knapweed. A small 3 m by 3 m cabin is present at the edge of the site. Groundcover is limited but there are some fragrant sumac and New Jersey tea present. d) Small areas that have are dominated by dense stands of trembling aspen, large-tooth aspen and white birch. These communities may be associated with previous cuttings. Canopy closure is 70-85% and trees are not large(less than 20 cm dbh and less than 15 cm in height). poison ivy and fragrant sumac are present were there are openings.
FOD4 Dry-Fresh Deciduous Forest Ecosite	CANOPY *Populus grandidentata* *Prunus serotina* SUBCANOPY *Acer rubrum* SHRUB *Rhus radicans* *Cornus rugosa* HERB Graminoides	This early aged forest has a canopy with low closure (10-25%) and a very dense sub-canopy (80-100%). The canopy is dominated by large-tooth aspen with some black cherry and the sub-canopy is dominated by young red maple with some sugar maple, white oak and black cherry with a DBH <10 cm. There was logging activity in the past from the many obvious stumps and suckering Red Maples. The bark of the stumps appears to be balsam poplar. Shrub cover density is around 25% and dominated by poison ivy and roundleaf dogwood (*Cornus rugosa*). The ground layer coverage is 25 – 60% and is dominated by a grass species with some Wintergreen, Hairy Solomon Seal and Star Flower.
FOD5-1 Dry-Fresh Sugar Maple Deciduous Forest Type	CANOPY Acer saccharum Quercus rubra Pinus strobes *Fraxinus grandifolia*	Rich woods on rolling uplands dissected by streams. Special feature is older-growth forest; basal area up to 40.

	Fraxinus americana SUBCANOPY *Acer saccharum* *Fraxinus grandifolia* *Betula papyrifera* SHRUB HERB	
FOD8-1 Fresh-Moist Poplar Deciduous Forest Type	CANOPY *Populus tremuloides* SUB-CANOPY *Picea glauca* *Populus tremuloides* *Populus grandidentata* SHRUB *Rhus radicans* *Viburnum rafinesquianum* *Comptonia peregrina* *Shepardia canadensis* HERB *Potentilla simplex* *Melilotus alba* *Fragaria* sp. Graminoides *Acslepias syriaca*	This forest is patchy with 60-80% cover with White spruce, Scots pine and black oak as associates. The sub-canopy is 3-5m tall with 60-80% cover. The regeneration cover is 60-80% and < 1m in height with Scots pine, white spruce, trembling aspen, white oak, black oak and black cherry. The shrub layer has a cover of 10-25%. The herb layer has a cover of 80-100%.
FOD9-2 Fresh-Moist Oak-Maple Deciduous Forest Type	CANOPY *Acer rubrum* SHRUB *Rhus radicans* (D) HERB *Pteridium aquilinum* (A) *Carex pennsylvanica* (A) *Geranium maculatum* (A) *Maianthemum racemosa* (A)	This forest community shows evidence of previous cutting as many of the trees are young and multi-stemmed. There are few trees with a DBH greater than 10 cm. The forest is regenerating from the cut stumps as well as seed. The canopy is dominated by multi-stemmed red maple with little sub-canopy. The shrub layer is dominated by poison ivy (<90% cover) with some roundleaf dogwood. The ground layer is cover is moderate with false solomon's seal (*Maianthemum racemosum*), bracken fern, Pensylvanica sedge, wild geranium (*Geranium maculatum*).
FOM1 Dry Oak-Pine Mixed Forest Ecosite	CANOPY *Quercus velutina* *Pinus sylvestris* *Populus tremuloides* SHRUB *Rhus radicans* HERB Graminoides	There are two areas of this community: a) Part of this community is of higher elevation and there is a higher percentage of black oak in the canopy. As well there is more regeneration in the understory layer of oak. The understory is dense with both shrub regeneration dominated by poison ivy and oak regeneration. Ground cover dominates include Pensylvanica sedge and bracken fern. Canopy cover is 50 % and shrub cover is 30%. b) This area is regenerating into a deciduous forest and at this time is acting as a mixed forest. The canopy closure is variable and about 80%. The regeneration layer is dominated by red maple with some Scots pine and black cherry. The regeneration is moderate and 3-5m in height. The shrub layer is dominated by poison ivy but sweet fern and New Jersey tea are also abundant. The ground layer is moderately dense.
FOM2-1/2 Dry-Fresh White Pine-Oak/Maple Mixed Forest Type	CANOPY *Pinus strobus* *Quercus rubra* *Acer saccharum* SUPCANOPY *Betula papyrifera* *Prunus serotina* *Acer saccharum* *Thuja occidentalis* *Fraxinus americana*	Dry rolling uplands; south –facing slopes have more cover. Prevalent through middle of Lot 14 in the original park. Dominant species vary; sparse ground cover; some Scots pine (mid age).
FOM2-2 Dry Fresh Red Maple-White Pine Mixed Forest Type	CANOPY *Acer rubrum* *Pinus strobus* SUB-CANOPY *Acer rubrum* (D) *Quercus velutina* (A) *Betula papyrifera* (A) SHRUB *Rhus radicans* (D) *Vaccinium* sp. (A) HERB *Carex pennsylvanica*	This mixed forest shows evidence of past logging from the presence of stumps and red maples, which have suckered from cuts. The canopy is dominated by red maple with white pine and large-tooth aspen but only has 10-25% cover. The sub-canopy is very dense with 80-100% cover and dominated by red maple with black oak and white birch. The shrub layer cover is low (25%) and dominated by poison ivy with low sweet blueberry (*Vaccinium angustifolium*), roundleaf dogwood and fragrant sumac. The ground layer cover is moderate (50-60%) and dominated by Pensylvanica sedge, Canada mayflower and hairy solomon's seal (*Polygonatum pubescens).*
FOM3-1 Dry-Fresh Hardwood-Hemlock	CANOPY Tsuga Canadensis	This community is present on the tableland and north facing slope. The canopy is dominated by hemlock, cedar, sugar maple and red maple. On the slope the

Mixed Forest Type	Acer ruburm Acer sacharrum	conifers dominate with deciduous in the understory. On the tableland the deciduous dominate with conifer in the understory. The communities have similar understory and ground cover and are too small to split so they have been included as one.
FOM6 Fresh-Moist Hemlock Mixed Forest Ecosite	CANOPY *Tsuga Canadensis* *Quercus rubra* *A. sacc.sacc* SUPCANOPY *A.saccharum*	There are two areas of this community: a) Rolling upland dissected by streams. Ground cover almost base; more understory diversity in creek valleys; very little hemlock recruitment. b) This area is dominated by large hemlock (5), white pine (3) and red pine (2). Many of the hemlocks are over 40 cm DBH. The trees are tall and the canopy closure is 80-90%. The understory is relatively open with low regeneration of hemlock, cedar and sugar maple. In addition this community has 2 trails running through it and there is a good deal of topographic relief in the community.
FOM7-2 Fresh-Moist White Cedar-Hardwood Mixed Forest Type	CANOPY Ulmus americana Pinus strobus Thuja occidentatis SHRUB Abies balsamea Ribes cynostabti Rhus radicans HERB Epicactus helleborine Dryoptosis carthusiana	The canopy is dominated by equal portions of American elm, white pine, white cedar and green ash (*Fraxinus pennsylvanica*). White birch is present in the canopy but to a lesser extent. A dense(85% cover) understory is dominated by regenerating beech, balsam fir (*Abies balsamea*) and cedar. Ground cover and shrub regeneration is low but poison ivy and prickly gooseberry (*Ribes cynosbati*) are present in the shrub layer, eastern helleborine (*Epipactis helleborine*) and spinulose woodfern (*Dryopteris carthusiana*) are present in the herbaceous layer.
MAM3-1 Bluejoint Organic Meadow Marsh Type	CANOPY *Cornus stolonifera* SHRUB *Salix sp* *Rubus triste* HERB *Carex stipata* *Matteuccia struthiopteris var. pensylvanica* *Calamagrostis canadensis*	Open meadow community of cattails and Canada bluejoint interspersed with dense shrub Thicket dominated by red osier dogwood, red berried elder, swamp gooseberry (*Ribes triste*) and willow sp. A winding stream goes through this community and beavers have used this area for their lodge. Cut poplar trees were noted, with relatively few trees present. Beaver and changes upstream from humans have made the water levels in this area variable. This community is on the border line between a organic shrub thicket and a meadow marsh. The changing water levels have a major effect on this. A dense diverse ground layer exists that is dominated by joe pye weed, *Carex stipata*, ostrich fern (*Matteuccia struthiopteris*), stinging nettle, marsh-marigold (*Caltha palustris*; along creek), touch me not (*Impatiens sp.*) and Canada bluejoint.
SBO1 Open Sand Barren Ecosite	CANOPY Pinus sylvestis Quercus velutina HERB Poa compressa Danthonia spicata	An open area dominated by exposed sand, scattered trees and shrubs and dominated by native and non-native species. There are numerous sites that this community exists in small sections. There are scattered Scots pine, sugar maple, black oak, white pine, that have seeded in from the surrounding areas. Canopy cover of trees is typically less than 10%. Ground cover is the dominant community. Non-natives include *Poa compressa*, knapweed, hop clover, *Potentila recta*. Native species include poverty oats grass, prairie cinquefoil, strawberry, little blue stem, butterfly milkweed. Groundcover closure is typically 80-90% with small open patches of sand.
SWC2-2 Hemlock Mineral Coniferous Swamp Type	CANOPY Tsuga canadensis Thuja occidentalis Pinus strobus SHRUB Cornus stolonifera HERB Trientalis borealis Clintonia borealis Coptis trifoliata	A lowland area dominated by large mature hemlock, white pine and cedar. Ground cover has distinct northern component with goldthread.
SWC4-2 Tamarack-Black Spruce Organic Coniferous Swamp Type	CANOPY *Picea mariana*	Black Spruce dominated swamp with a northern boreal characteristics.
SWD7-1 White Birch-Poplar Organic Deciduous Swamp Type	CANOPY *Betula papyrifera* *Populus trembuloides*	An organic swamp found on the northern block of the Burnley Carmel property. Only a small section of this community is on the property. Burnley Creek runs adjacent to this community.
SWM4 White Cedar Organic Mixed Swamp Ecosite	CANOPY *T. occidentalis* *Pinus strobes* *Picea sp.* *Acer saccharum* *Betula papyerifera* *B. allegheniensis*	Lowland drainages. Swamp complex with varying cove and compositions. Not surveyed in 2004.

	Fraxinus nigra *F. pennsylvanica*	
SWT3-2 Willow Organic Thicket Swamp Type	CANOPY Salix xp *Cornus stolonifera* SHRUB *Salix sp* *Rubus triste* HERB *Carex stipata* *Matteuccia struthiopteris var. pensylvanica* *Calamagrostis canadensis*	Dense shrub thicket dominated by red osier dogwood, red berried elder, swamp gooseberry, willow sp. A winding stream goes through this community and beavers have used this area for their lodge. Cut poplar trees were noted, with relatively few trees present. Beaver and changes upstream have made the water levels in this area variable. This community is on the border line between an organic shrub thicket and a meadow marsh. The changing water levels have a major effect on this. A dense diverse ground layer exists that is dominated by joe pye weed, *Carex stipata*, ostrich fern, stinging nettle, marsh-marigold (along creek), touch me not and Canada bluejoint.
TPO1-1 Dry Tallgrass Prairie Type	CANOPY *Pinus sylvestris* HERB *Andropogon gerardii* *Schizachyrium scoparium* *Sorghastrum nutans*	Two very small areas, but important in the prairie and savannah species that are present and their numbers. Dominated by big bluestem, little bluestem, indian grass and butterfly milkweed. Scots pine is regenerating in some areas.
TPS1-2 Dry Black Oak-Pine Tallgrass Savannah Type	CANOPY *Pinus strobus* *Quercus velutina* *P. sylvestris* *Populus sp.* HERB *Danthonia spicata* *Solidago sp.* Graminoides	Dry rolling upland. Canopy very patchy. Not well-described by ELC. Grasses in ground cover are dominated by non-native species.
TPW1-1 Dry Black Oak-White Oak Tallgrass Woodland Type	CANOPY Quercus velutina Pinus strobus Pinus resinosa Quercus alba SHRUB Prunus virginiana HERB Carex pensylvanica Danthonia spicata	One of the best quality savannahs on the property having no planted Scots pine and an open canopy structure. The canopy is 65% cover and is dominated by black oak, with smaller concentrations of red pine. The red pines are large (45-55 cm dbh) and don't appear to be planted. The understory consists of regeneration black oak, fragrant sumac, snowberry and New Jersey tea. Poverty oat grass, anemone (*Anemone sp.*)and Pensylvanica sedge dominate the understory. A light firewood cut has taken place in the past. The canopy cover is below 35 % is some areas.

Appendix 2. Vegetation Management Prescriptions by Community Class

The following is a description of each vegetation community class occurring in Peter's Woods as derived from work done by the NCC and Ontario Parks in 2004, with corresponding management prescriptions where appropriate. The prescriptions will be utilized at Peter's Woods based on a combination of effectiveness and practicality. An adaptive management approach will be the key to management success, and will depend on a continued inventory and monitoring program (**Section 9.4, Appendix 4**).

1) Cultural (137 ha) (Zones NR 3, 4, 5, 6)

This community class consists of plantations, woodlands and meadows that have been unmanaged.

The plantations consist of red pine (*Pinus resinosa*), white pine, Scots pine, with limited amounts of white spruce (*Picea glauca*). The red pine plantations have been thinned and managed; many have had every fourth row removed as part of a previous management regime. Scots pine plantations typically have had little management. The understory is very limited to non existent in the plantation communities.

The woodland areas were formerly savannah sites in which tree cover has increased due to succession and a lack of management. Dominant species include black oak, white ash, black cherry (*Prunus serotina*) and white birch (*Betula papyrifera*). Some of these areas were originally prairie and savannah. Management of these areas should be on a polygon by polygon basis and consider the amount of prairie and savannah currently present.

The cultural meadows are old field habitats that are dominated by non-native species but have native plants and prairie species within them. These include black oak, bracken fern (*Pteridium aquilinum*), poison ivy (*Rhus radicans*), fragrant sumac and Pensylvanica sedge.

- ***Management Prescription - Plantation***

  The plantations are in need of forest management work. The goals for the red and white pine plantations are thinning. For Scots pine plantations, the short term goal is thinning, leading to the long term goal of complete removal.

  Many of the red pine plantations are at the stage where more thinning is required and may occur. In some areas, a heavier cut may be required along with seeding of native savannah species to assist in the regeneration process. Seeding may be achieved through addition of litter from a nearby forest community that resembles the restoration goal for the site.

  In areas of Scots pine within Parts 2 and 3, the canopy is relatively open and black oak is competing for light levels with the mature and regenerating Scots pine. A prescribed burn program may be initiated and appropriate forest management may be undertaken in these communities. Where there are significant amounts of prairie species in the understory, larger openings in the canopy may be created.

  In other areas within Parts 2 and 3, the Scots pine is extremely dense and requires cutting as soon as possible. The trees are small diameter (less than 10 cm diameter at breast height (DBH)) and there is no natural understory or regeneration. Therefore, scattering of native savannah seeds may be beneficial after cutting.

The dense plantation within Part 1 of the park is mainly white pine. It should be thinned. Non-native species like dog strangling vine will be controlled.

Pine shoot beetle (*Tomicus piniperda*), an invasive species that has been found in eastern Ontario, is attracted to areas where pine stumps and slash are present. In order to prevent the establishment of this pest at the park, pine that are removed should be cut during winter or spring and cut to ground level. Cut material (tress and stumps) may be either chipped in place or, in areas where a prescribed burn is planned for the following spring, left as is for fuel load. In the later case, if a prescribed burn does not occur the following spring, the cut material will be chipped. The chipped wood may be used for trail maintenance at the park or taken off-site.

2) Forest (183ha) (Zones NR1-6)

This community class consists of natural deciduous forests including sugar maple forest, red maple-oak forest, oak forest, and early successional poplar forest with white birch, oak and maple in the understory. Mixed forests are also common with moist hemlock – birch and cedar and yellow birch (*Betula alleghaniensis*) and red maple communities and dry to fresh oak and pine forests. Hemlock and cedar are the dominant canopy in the coniferous forests.

Within the Burnley-Carmel addition, all of these communities are located in Part 2 with two exceptions. Both are located in Part 3, one in the south west corner and the other on the east side. This is the main community class within Part 1 of the park, and includes the older-growth forest.

- ***Management prescription***
  Natural processes will be allowed to continue within this zone. Non-native species will be monitored and controlled if necessary.

3) Tallgrass Prairie, Savannah and Woodland (20 ha) (Zones NR1-4)

This community class includes tallgrass prairie, oak savannah, oak – pine savannah and oak woodland.

These communities are dominated by tallgrass species such as indian grass (*Sorghastrum nutans*) and big bluestem (*Andropogon gerardii*). The woodland community which makes up the vast majority of the acreage is dominated by open grown black and white oak (*Quercus alba*) and sometimes pine. These oak savannah and woodland areas represent the best quality sites within the park, the Rice Lake Plains and in some cases in southern Ontario. Tallgrass species such as Pensylvanica sedge, prairie buttercup (*Ranunculus rhomboideus*) and fragrant sumac are found in high proportions. Tallgrass species would begin to disappear as the tree and shrub cover increases. These communities are the best examples of this community type within the park and represent an excellent opportunity to restore part of Ontario's tallgrass prairie ecosystems.

Knapweed (*Centaurea jacea and C. maculosa)*, white sweet clover (*Melilotus alba*) and Scots pine are non-native species that threaten this community. Removal of Scots pine is key to improving the health and biodiversity of the prairie.

- ***Management Prescription – Prairie***
  Scots pine and other non-native species such as white sweet clover, knapweed and dog-strangling vine (*Vincetoxicum rossicum*) will be controlled. Several of these species are

persistent and take years to control. Re- occurring fire can have a controlling effect on these species, but in some cases may stimulate their growth. Seeds of these plants are long lived and remain present in the seed bank.

Prescribed burns are by far the best management tool for these tallgrass sites. Frequency of burning will be determined through monitoring and assessment. Frequency within an individual community may vary from annually to periodically dependent on quality of the site, fuel load and availability of resources. There has been an increased concern expressed about the need for unburned areas as refuge for invertebrates. The prescribed burn plan could be modified to ensure that at least part of the tallgrass prairie community is left unmanaged in any given year.

- ***Management Prescription - Oak Savannah, Woodlands***
  The highest quality oak savannahs within the park have an opened canopy and good regeneration of oaks in the understory. Prescribed burning will be used to maintain this open structure. Lower quality areas may require removal of non-native trees (e.g., Scots pine) and thinning of native trees (e.g., red pine, white pine), which are closing the canopy.

4) Sand Barrens (3.4 ha) (Zones NR2-5)

These communities are relatively small and located in patches within the Burnley-Carmel addition. They consist of open areas that are dominated by exposed sand, scattered trees and shrubs, and they contain relatively few plants compared to the prairie communities. Canopy cover of trees is typically less than 10%. Ground cover is the dominant community. Native species include poverty oat grass, prairie cinquefoil (*Potentilla arguta*), strawberry (*Fragaria virginiana*), little bluestem (*Schizachyrium scoparium*), and butterfly milkweed. Groundcover closure is typically 80-90% with open patches of sand. Non-native species include Canada bluegrass (*Poa compressa*), knapweed, hop clover (*Trifolium campestre*), and sulfur cinquefoil (*Potentilla recta*) in addition to scattered Scots pine that have seeded in from the surrounding areas.

- ***Management prescription***
  Non-native species that become established in this habitat may be monitored and removed if negatively affecting native species. Fire is a part of this system as well, and may be used to help control encroachment by native and non-native species. Management of these areas should occur in conjunction with adjacent prairie communities.

5) Marsh and Swamp (19 ha) (Zones NR5, 6)

The organic marsh is located within Part 2 along Burnley Creek. It is an open marsh community dominated by cattails and Canada bluejoint (*Calamagrostis canadensis*). Beavers (*Castor canadensis*) are present in Burnley Creek, and their activities can cause fluctuations in water levels. This community has a diverse and dense ground and shrub layer of spotted joe pyeweed (*Eupatorium maculatum*), stalk-grain sedge (*Carex stipata var. stipata*), ostrich fern (*Matteuccia struthiopteris*), stinging nettle (*Urtica dioica ssp. gracilis*), dogwoods and willows.

The swamp communities consist of mineral and organic coniferous swamps and thicket swamps. These communities are found in the northern section of Part 2, specifically along Burnley Creek, and along the eastern edge of Part 1 of the park, where streams and creeks converge. Hemlock and white pine dominate the coniferous swamp. The thickets are made up of red osier dogwood (*Cornus stolonifera*), red berried elder (*Sambucus racemosa ssp. pubens*) and willow species. These communities have low to very few non-native species present.

Water levels have fluctuated with the appearance and disappearance of beaver over the last few years, which is part of a natural cycle for these communities.

- ***Management prescription***
  There are relatively few management issues associated with the wetland communities within the park. Purple loosestrife (*Lythrum salicaria*) is present in the wetland areas of the Burnley-Carmel addition but not in high concentrations. Non-native species should be monitored to determine effects on native species or communities, and may be controlled if there is a need to take an active approach.

Appendix 3. Prairie Management Techniques

The information in this section is derived or quoted from the Ojibway Prairie Provincial Nature Reserve Park Resource Stewardship Plan (MNR 1997).

Prairies require active management to remove and control native and non-native woody stems, grasses and forbs that compete with the rare native prairie species. The vast amount of literature on the subject of prairie management indicates that managers have tried a wide variety of techniques to achieve the desired end result.

The following techniques have been considered and are recommended for use at Peter's Woods.

Prescribed Burning

The literature abounds with evidence for the historic occurrence of fire as a natural phenomenon in the tallgrass prairie ecosystem, and for the need of it in the proper management of any remaining healthy prairie community. However the frequency of naturally occurring fires in tallgrass prairie communities is not known for certain. Most expert opinion suggests that it occurred at least once every ten years in the western part of the tallgrass prairie biome, because of the smaller amount of rainfall (a net loss during the growing season, which favours the deeply rooted, herbaceous, tallgrass prairie species, and puts the relatively shallow rooted woody species at a disadvantage).

Peter's Woods is at the eastern edge of the tallgrass prairie biome, where there is greater rainfall, resulting in a lush growth of tallgrass prairie and competing woody species. Therefore to maintain prairie, even in a healthy prairie community, fire frequency would probably be once every two or three years.

There is a need to ensure that prairies are burned often enough, thoroughly enough and at the right time. Given the location of Peter's Woods, the best time to burn is early spring and will depend on annual weather, but will likely be from mid to late March to mid April. Burn windows are often very small, so opportunities should be taken when they arise. The mid March to mid April time frame is ideal because it:

- leaves winter cover for wildlife;
- can suppress or eliminate highly competitive but undesirable early emerging herbaceous species;
- inhibits or suppresses altogether the growth of thin-barked, woody species;
- almost immediately makes available the nutrients that would otherwise be stored up in the vegetative litter; and
- exposes the soil to the warming effects of the sun, which is especially effective if covered by a thin layer of blackened ash. This warming effect is critical to stimulate the initial growth of the prairie species. Soil temperatures beneath a layer of vegetative litter are too cool for optimal stimulation of the tallgrass prairie species.

In some years there may be a fall burn window, which would be even smaller than in the spring. Only under exceptional circumstances (e.g., if weather is unsuitable to carry out a spring burn for two or more successive years) should a fall burn be considered at Peter's Woods, and then only for an area already at the maintenance phase of management. Fall burns eliminate winter

cover for wildlife, and some observations have indicated that the exposed, blackened ash on the soil surface too early in the season (i.e. before growth of any species) can actually benefit early emerging cool season species that would be more prevalent in areas still in the restoration phase of management.

When managing the prairie or part of the prairie in a restoration phase, it is imperative to attempt annual prescribed burns. Practical fire indices should be established by regional fire staff to take into consideration the weather conditions and herbaceous vegetation conditions during the last part of March or early part of April in order to carry out a prescribed burn as early in April as possible.

Given that the prairie and savannah areas of the park are in the restoration phase, and thus require annual burns, missing a burn in even one year retards the rehabilitative process. It may therefore be necessary to carry out a prescribed burn in some years under less than ideal conditions. Once a part of the prairie has been determined, by monitoring, to progress to a maintenance phase of management, then prescribed burns need not be annual, as long as the quality of the prairie is maintained. Burning some areas less frequently than annually will not only reduce the cost of carrying out the burn, but will have the added advantage of providing refugia for invertebrates.

Fire may kill some of the larger oaks, primarily in the oak savannah areas where large amounts of vegetative litter adjacent to the trees create an intense heat during a prescribed burn. Fire management techniques can reduce this risk.

Woody Stem Cutting:
Woody species such as poplar, Scots pine, and sumac are components of tallgrass prairie and oak savannah communities. However because of the lack of effective fire, these species have expanded to become, in some cases, extensive thickets, crowding out native grasses and forbs. Fire alone will not likely reduce the extent of these thickets for many years. Many of the areas in Peter's Woods have plantations of Scots pine with prairie species underneath. To speed up the rehabilitation of the prairie environment and to reduce the heat levels, removal of Scots pine prior to a prescribed burn may be required in some areas.

In some cases cutting woody stems may be necessary, and may continue to be so, as these thickets will not support fire. Ideally, they should be cut in mid-summer when the woody stem's food reserves area lowest, with most of the energy above ground. Most species will resprout rather vigorously, but the extra light reaching the ground will stimulate the growth of native grasses, which will provide competition to the sprouts and fuel to carry future fires. As this process is often a gradual one, some re-cutting may be required in subsequent years. Eventually, regular fire alone will likely control these extensive thickets and should replace the need for cutting.

Artificial Fuel:
It may take longer than desired for herbaceous tallgrass prairie vegetation to become well established in some of the areas where extensive thickets are now present. Natural fuel in quantities adequate to support fire which will effectively suppress woody stem growth may not be available. In these cases, fuel material such as clean wheat straw, with no non-native seeds, may be scattered throughout the thicket just prior to the burn. This will speed up the restoration process using a natural phenomenon.

Herbicides:
Resprouting of woody stems in thickets may continue to hamper the rehabilitative process in spite of adding fuel. Also, some non-native woody species (e.g., Scots pine) are particularly persistent and will sucker vigorously after cutting or burning to the point of actually becoming more problematic. However, the use of a short-lived, biodegradable herbicide (e.g., glyphosate) can greatly expedite restoration efforts. If the stems are large enough, they can be injected with the herbicide. If the stems are too small, they can be cut and then immediately have the herbicide brushed directly onto the cut area. As the stem dies, the sunlight reaching the ground will stimulate herbaceous prairie vegetation. Herbicides that are short-lived and biodegradable should therefore be used to control persistent or invasive woody species.

Mowing:
Because of the significant amount of heavy tree cover in many of the savannah sites, mowing would not work in these areas. In addition, many of the areas are covered by steep slopes. Mowing may be practical on smaller areas, after some of the large non-native trees have been removed.

Seeding:
Most of the communities that require restoration have not been burned in decades. Many communities, specifically plantations, have pockets of prairie species.

Relying on natural succession to re-establish prairie, even with regular fire, may require decades, primarily because of a limited seed source for most of the wind dispersed, tallgrass prairie species. It is important, from a practical as well as a public perception and aesthetic standpoint, to re-establish quality prairie in a more expeditious way. This can be done best by collecting seed of native prairie species from the park or immediate area and hand broadcasting after a fire.

Even more effective, albeit more costly, is to acquire seedlings or plugs of appropriate species and hand plant them on the site. The advantages of this option is a more efficient use of seed, and an immediate visual response, as some of the plant plugs may mature and produce their own seed in the first growing season. Some species that do not establish themselves well by seeding or have very limited seed available will especially benefit from a plug option.

Appendix 4. Monitoring Programs within Peters Woods Provincial Park

The following monitoring programs will be repeated annually within actively managed areas, unless otherwise stated below.

Ontario Parks and the NCC will ensure consistent monitoring methods are used for similar vegetation communities within all parts of the park.

Vegetation communities have been inventoried and classified according to the Ecological Land Classification of Southern Ontario (ELC) protocol (Lee *et al* 1998).

1) Part 1

Ontario Parks completed updated monitoring of Part 1 of the park in 2004. More detailed surveys were also carried out in the prairie remnant community and within the older-growth forest community in 2005.

- ***Photo Monitoring.***
  Sites within Part 1 of the park were established in 1989 to document the state of the forest trail, record state of succession in old field habitats, document vegetation along the southern road allowance, and to replicate certain photos taken in the 1970s, providing a visual record indicating change that had taken place over time. These sites were relocated in 2004, and photos were taken in same direction at each site as they had been in the past.

  In 2005, additional photo monitoring sites were located in the savannah areas of the site in association with the monitoring protocol developed by the NCC to assess the effectiveness of prescribed burning. Photo monitoring occurred at each transect that was established for vegetation monitoring (see below). Five photos were taken at each transect. The first was from the northernmost end of the transect, facing the centre to provide a context for the location. From the centre point, photos were taken in four directions at right angles to the transect and the azimuth was noted. A two metre high, cardboard density board was created with black and white bands painted in 50 cm intervals. This was placed 10 m from the centre point for each photo. Digital photographs were taken at eye height with no zoom.

- ***Vegetation Monitoring.***
  In 2005, detailed vegetation monitoring was initiated in the savannah area of the site to generate baseline data and evaluate the effects of future management actions. Four 50 m transects were established in each of the open and forested habitats of the savannah portion of the site. The start, middle, and end of each transect was marked using orange painted rebar and GPS coordinates were taken. A one metre strip on either side of each transect was surveyed to obtain stem counts for 10 prairie forb indicator species. Within this same area, all tree seedlings and saplings under 10 cm diametre at breast height (DBH) were identified and counted. From the centre point of each transect, a prism sweep was conducted and the species determined for all trees with a DBH greater than 10 cm. Shrubs were monitored by noting the distance each species covered along the centre line of each transect. Every 10 m along each transect, on the left side, a 50 cm by 50 cm quadrat was created to measure the percent coverage of all graminoid species. All plants and animals located around or within each transect were noted. For more detailed methodology, refer to *Peter's Woods Prescribed Burn Vegetation Monitoring* (Imrie 2006).

- ***Tree Diameter.***
  This monitoring occurs within the older-growth forest community in zone NR6 in Part 1 of the park in order to track the changes in abundance of older-growth trees. Diameter at breast height (DBH) was recorded for all trees in 1969 and repeated in 2004. Trees within the study area greater in diameter than 49 cm DBH were measured in 2004. Each tree was identified to species and its circumference measured at approximately 110 cm height. The condition of the tree was also noted. Size was generally assumed to be correlated with age for the purposes of this project. This method is described in detail in *Peter's Woods Ecological Survey, Monitoring and Stewardship* (Brdar 2005).

  Point-quarter sampling at 24 randomly selected stations within the older-growth mixed deciduous forest was conducted in 1998 as part of an evaluation of significant woodlands in southern Ontario by the former Federation of Ontario Naturalists (now Ontario Nature). This method may be repeated in future years.

2) Parts 2 and 3 (Burnley-Carmel Addition)

NCC, with funding from the Federal Habitat Species at Risk program, began the process of documenting habitats, species and restoration requirements of Parts 2 and 3 of the park (the Burnley-Carmel addition) in 2003. These surveys provided detailed baseline information to guide the restoration of these areas and against which to measure success. More detailed surveys were also carried out in key savannah polygons.

- ***Photo Monitoring.***
  Photo monitoring sites within vegetation communities were selected based on air photo interpretation and inventory and ELC field information. Site visits took place through the summer and fall of 2003. Plots (10 m^2) were located in areas representative of the community and away from edge effects. A two metre high, plywood density board with black and white bands painted in 50 cm intervals was placed at 10 metres from the center point. Photos were taken from the centre point and at the north, east, west and south azimuth. Pictures were taken at eye level with a digital camera. The majority of the photo monitoring stations within the Burnley-Carmel addition will undergo active management in the coming years. Control plots have been established to allow comparison of changes in community structure of managed and non managed sites. GPS coordinates for were recorded in the centre of each plot to enable replication in subsequent years.

- ***Vegetation Monitoring.***
  Transect sites were determined through evaluation of air photo interpretation, inventories, restoration potential and ELC field information. Ten transect locations were established. One by two metre plots were laid out along each transect. GPS coordinates for transect locations were recorded to enable replication in subsequent years. The percentage cover was determined for species in the overstorey, understory and ground layer. Unknown species were collected for lab identification.

  Photo monitoring and vegetation monitoring methodology for the Burnley-Carmel addition is described in detail in *Restoration Baseline of Tallgrass Prairie Communities in Burnley Carmel Natural Area* (NCC 2004).

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